University of Canterbury

A Review of New Zealand's Past & Current R&D Incentives and How They Reflect Adam Smith's (1776) Principles of Good Taxation: An Exploratory Study

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A Thesis Submitted to University of Canterbury of Christchurch in Fulfillment of the Requirements for the Master of Commerce with Honours Degree in Taxation

at the

University of Canterbury,

Christchurch

New Zealand

2 October 2016

ACKNOWLEDGEMENT

I would like to extend my sincere thanks to those who have made the completion of this thesis possible and have contributed to this thesis either directly or indirectly.

It is a blessing to have been under the supervision of Professor Adrian Sawyer and Alistair Hodson, their advice and expertise in this field have competently guided me through this journey. Their insights, time, and efforts dedicated to this project were invaluable.

I thank the interviewees for their participation and the time dedicated to this research. I would also like to extend my thanks to the University of Canterbury and especially the Department of Accounting and Information Systems for funding thesis related travel and accommodation in order to conduct my preliminary interviews.

I am also deeply grateful to my workplace for their flexibility and progressiveness in supporting my endeavour to seek postgraduate education. This experience has been a very valuable one and I am indebted to you.

Lastly, I wish to express my gratitude to my family and colleagues, my fiancé James, my parents Raad and Meriam, and my wonderful friends who have supported me throughout and offered encouragement serving as my inspiration to pursue this undertaking.

Thank you all for your time and willingness to partake in this project.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

The importance of Research and Development ("R&D") in generating innovation is an often-discussed matter among scholars and politicians. The conclusions from academic literature on the matter seem to vary between studies and when addressing different types of R&D incentives. In New Zealand, there has been interest in using R&D incentives to increase R&D expenditure, which hypothetically leads to better economic growth, knowledge-spillovers and the gaining of a competitive advantage with markets overseas. The reason for the increased interest in R&D perhaps most dominantly stems from an Organisation for Economic Cooperation and Development (OECD) R&D survey. The survey shows that in comparison with other OECD countries of comparable size New Zealand's R&D spending is noticeably substandard, hence, the urging importance of discovering an effective way to alter business behaviour and increase R&D spending. This necessity to increase R&D spending invites the need for R&D incentives as well as increase the volume of experimental research conducted with the resolve of better understanding the collective effects involved in utilising different R&D policy tools to cultivate R&D expenditure. With the intention of adding to the sparse, non-quantitative R&D incentive discussion, this project provides a qualitative review of prior and current R&D incentives used in New Zealand. This project further evaluates the possible effectiveness of New Zealand's past and current R&D incentives in terms of equity, certainty, convenience and economy. This project utilises the case study approach and the qualitative documentary analysis method to perform an exploratory study that applies Adam Smith's (1776) Principles of Good Taxation as an evaluation framework to assess the effectiveness of the above-mentioned incentives. The tentative findings show effectiveness according to Adam Smith's framework in relative ranking being: the R&D Tax Credit and R&D Cash Out of losses incentives are tied in first place, followed by the new R&D Callaghan Innovation Grants in second place.

LIST OF ACRONYMS

This section expands some of the acronyms used in the thesis.

ATI:	Advanced Technology Institute
BERD:	Business R&D Expenditure
BGA:	Building Innovation Update
BHE:	Black-Hole Expenditure
CA-ANZ:	Chartered Accountants Australia and New Zealand
CI:	Callaghan Innovation
FRS:	Financial Reporting Standards
GDP:	Gross Domestic Product
HVMS:	High Value Manufacturing And Services Sector
IAS:	International Accounting Standards
IRD:	Inland Revenue Department
MoED:	Ministry of Economic Development
MoSR&T:	Ministry of Science, Research and Technology
MSI:	Ministry of Science and Innovation
NZICA:	New Zealand Institute of Chartered Accountants
OECD:	Organisation for Economic Co-operation and Development
R&D:	Research and Development
RDI:	Research and Development Intensity
RS&T:	Research Science & Technology
SFO:	Serious Fraud Office
S.I.E.:	Systematic, Investigative and Experimental Activities
SME:	Small to Medium Enterprise
SNZ:	Statistics New Zealand
TWG:	Tax Working Group

CHAPTER 1: INTRODUCTION

The advancing speed of technological transformation and receding product life cycles are compelling many firms to generate and commercialise knowledge using a more timely and cost-efficient approach. Companies are consequently continuously searching for ways to deepen and broaden their innovative abilities, which are essential for their long-term existence and evolution (Faems et al., 2005). For instance, by processes that include investing funds in R&D to accelerate innovation. Moreover, considering the level of worldwide governmental engagement in the matter, most governments believe that government policy favourably influences the rate of technological advancement by Small and Medium Enterprises (SME). Hence, they have set up an array of mechanisms to nurture innovation, such as R&D incentives (Meuleman, & De Maeseneire, 2012).

In 2005, Sawyer recapped the tentative steps New Zealand had taken towards improving the tax treatment of R&D spending. Sawyer laments that New Zealand had not embraced functional change to make its R&D tax regime further competitive universally. Sawyer makes the following observation regarding New Zealand's position in reference to improving the tax treatment of R&D spending: "New Zealand is in effect "at the cross-roads" in terms of choosing which path (or paths) it should follow to encourage further investment in R&D, such as incentive deductions, subsidies (or tax credits), or grants" (Sawyer, 2005, p.2). Over a decade later, New Zealand finds itself in that same position. The lack of qualitative research that reviews R&D incentives provides an opportunity for this research project to contribute to the existing body of literature.

This project is a case study that reviews past and current New Zealand R&D incentives using Adam Smith's Principles of Good Taxation as an evaluation framework. The research

method for undertaking this investigation is documentary analysis of published material in relation to 1) R&D Tax Credit, 2) R&D Grants and 3) the R&D Cash Out of losses incentive. The documents used for investigation include regulatory impact statements (RIS) from the Inland Revenue, submissions from taxpayers to the Finance and Expenditure Committee (FEC) and discussion documents produced by the New Zealand Treasury in relation to R&D incentive repeals and enactments.

This research aims to make qualitative comments of the political influences motivating the past and current R&D incentive options yet to appear in New Zealand. This thesis applies an institutional theoretical framework which seeks to address the extent of the role that institutional arrangements assume to an explanation of the context that transpires between the enactment, repeal and the legislative changes of R&D incentive policy in New Zealand.

This framework assists the research findings by allowing the researcher to cast a critical eye to offer insights into how the R&D policy design process advantages and disadvantages certain groups. Other objectives for this research include an exploration of each incentive and a cross-comparative analysis among all R&D incentives. These inquiries would eventually lead to the third process pertaining to this research drawing tentative conclusions as to which incentive(s) in this research is/are likely to be considered the most effective when benchmarked against Adam Smith's (1776) Principles of Good Taxation.

1.1 Importance of Topic

A report published in 2013 by Statistics New Zealand (SNZ) disclosed that R&D is a significant means of enabling economic growth and for upholding a strong New Zealand economy. R&D is an activity that is paramount to the development of new knowledge; it influences society by generating new marketplaces and new wage earning prospects.

A study by Griffith (2000) estimated private companies' rate of return and revealed that private businesses which invest in R&D receive a 10 – 15 per cent rate of return; some studies show that the rate of return can be as high as 30 per cent (Griffith, 2000, p.3). These benefits create job opportunity, the potential to produce new activities, and could strengthen New Zealand's competitiveness overseas. Griffith (2000, p.5) explains, "R&D not only stimulates innovation but also plays an important role in the adoption of existing technologies". Therefore, R&D leads to innovation and it helps companies to understand how to utilise new technologies to further their development.

For example, Fonterra[1] established the Fonterra Research and Development Centre (FRDC) which is one of the "largest research facilities in the world dedicated to dairy" (Fonterra Website, 2012). This commitment to R&D is one of the reasons Fonterra was able to stay on the cutting-edge of dairy innovation. This is one example of the deemed importance of R&D as it is proven vital to thriving in a fast changing market. According to Hong et al. (2013, p.2), New Zealand innovation is very reliant on the firms' ability of developing new knowledge and market demand. Small firms can also benefit from R&D; while R&D is usually internally generated, a small to medium business can still benefit from public resources and knowledge.

However, the most pressing reason to purse R&D tax incentives in New Zealand is that the nation's long-run productivity performance has been substandard. New Zealand's R&D expenditure is below the Organisation for Economic Cooperation and Development (OECD) average, as New Zealand is currently placed 29th out of 35 OECD members for R&D Spending as a percentage of R&D (OECD, 2016). This confirms the importance of

[1] Fonterra is a worldwide, co-operatively-owned company founded in New Zealand. For further information see: https://www.fonterra.com/nz/en/About/Company+Overview

conducting research on R&D tax incentives to provide potential recommendations on an effective R&D tax incentive reform to level the playing field internationally.

1.2 Contribution to Research

This thesis sets out to make two primary contributions. Firstly, to perform an overarching review of the environment that shaped the policies for the past R&D Tax Credit, and the current R&D Callaghan Grants and R&D Cash Out of Losses incentive regimes in New Zealand. This review includes a brief historical overview in Chapter 3 under section 3.2. This research adopts an institutional framework whereby there is a wish to clarify the New Zealand R&D regime landscape facilitating an understanding of the rationales behind each policy created.

The second key contribution of the research is to provide insights into how equitable, certain, convenient and economical each incentive is. These principles are used in this thesis as the overarching evaluative framework and are derived from the Adam Smith (1776) Principles of Good Taxation.

1.3 Structure of Thesis

Chapter 2, 'Literature Review', of this project provides a general overview of R&D. The chapter first presents the topic of R&D in general, and then briefly introduces research that discusses the value of R&D incentives. Next, the chapter begins to unravel some of the issues that pertain to performing R&D; the reluctances that companies have towards R&D investment. Some of the reluctances include R&D's high financial risks. This brief review also identifies some appropriate overseas examples regarding R&D definitions applicable for consideration in New Zealand.

Chapter 3, 'Current New Zealand R&D Regimes & Legislation', describes the historical context and exchanges that have led to the current R&D incentive and legislative environment. This section will describe the journeys undergone by each of the following: the past R&D Tax Credit, current R&D Grants and the new R&D Cash Out incentives. This chapter aims to inject coherence to the existing body of knowledge of the R&D incentives under study and identify gaps in current research, and indicate how this explorative research attempts to add to the New Zealand R&D incentive body of knowledge.

Chapter 4, 'Research Questions, Methods and Methodology', describes the qualitative exploratory research, which uses Adam Smith's (1776) Principles of Good Taxation as the standard for comparison across the three incentives at hand. This chapter also describes the research development, design and the theoretical framework comprising institutional theory, qualitative methodology and research tools operated to address the research questions asked. The literature review undertaken in the previous chapters highlights the motivations for the researcher to undertake her research and concludes that there is limited qualitative research that reviews past and current New Zealand R&D incentives.

Chapter 5, 'Discussion', intends to present the research findings as to which R&D incentive(s) among New Zealand's past and current R&D incentive systems is/are likely to be the most effective in terms of being the most equitable, convenient, certain, and economical - that is, the R&D incentive(s) most reflective of Adam Smith's (1776) Principles of Good Taxation.

This chapter will involve the following main processes:

- Exploration of each incentive's merits and shortfalls individually;
- A comparative analysis of selected R&D incentives; and
- A critical evaluation concluding which incentive(s) is/are likely most effective

The above processes aim to answer the following research questions within this chapter:

> *RQ1: Why did each incentive come into being? (Policy intentions)*
>
> *RQ2: How does each incentive fare when benchmarked against Adam Smith's Principles of Good Taxation?*
>
> *RQ3: Which incentive(s) is/are likely most effective according to the above assessments?*

Chapter 6, 'Conclusion, Limitations, and Future Research', recaps the discussion findings from chapter 5 above to answer this project's research questions and provide, in terms of Adam Smith's (1776) Principles of Good Taxation, evaluation in relative ranking as to which out of the three incentives examined in this research is likely the most effective. This chapter recaps what this research would have achieved and describes limitations of this research that future research can address.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The pivotal role of innovation as a key driver of economic growth and development is a matter that is well articulated in the past two decades according to the recent Organisation for Economic Cooperation and Development (OECD) publication titled 'The Innovation Imperative' (OECD, 2015). Advancing innovation and developing new competitive advantages have proved to be important issues for countries far and wide. Especially considering these countries' desire to combat stagnant business thinking, realise knowledge spillovers, and appeal to foreign multinationals. Therefore, it is not surprising that there is a clear universal trend for strengthening innovation in the quest for greater prosperity and better lives (OECD, 2015, p.3).

R&D is a component of innovation. R&D Investment in OECD countries has risen steadily over the last few decades (OECD, 2011a). This may indicate that undertaking R&D activities is an enduring reality for OECD economies that practice this process to cultivate innovation. OECD countries tend to compete in terms of innovation. The measurement of R&D as a percentage of GDP is one standard indicator of how innovative a country is, hence, governments encourage firms to increase their R&D spending. However, many challenges stand in the way of countries increasing their R&D spending.

One line of thought contends that R&D activities are both challenging to fund and finance in a freely competitive market. This is as the knowledge derived by the R&D undertaken by one firm is essentially non-rival and can trigger a free rider effect by being utilised by other firms. This economic theoretical modeling has had a long backing in research (For example: Hall, 2002; Arrow, 1962; Nelson, 1959; Schumpeter, 1942). R&D incentives therefore exist to counter prominent market failures in R&D investment. Investment in R&D is a risky activity

or as one OECD study further explains, "Due to recognised market failures, governments use a range of mechanisms to further stimulate business R&D" (2002, p.8). Hence, these programs are a government intervention created to motivate people to increase their R&D spending.

The following subsections provide a general overview of R&D incentives including a look back at the creation of policy tools. The chapter first presents an overview of public policy tools. Next, the chapter begins to unravel some of the issues that pertain to performing R&D; the reluctances that companies have towards R&D investment that cause market failures. Some of the reluctances include R&D's high financial risks. This brief review also identifies some appropriate overseas examples regarding R&D definitions applicable for consideration in New Zealand.

2.2 The Inception of Public Policy Tools

Schneider and Ingram (1990) refer to incentive tools as political phenomena after analysing the incentive tools' underlying behavioural assumptions. The topic of this research will hone in on tools that reward behaviour that is conductive to policy goals that classify as incentives, subsidies, rebates and technical programs. The 'Current New Zealand R&D Regimes & Legislation' chapter below discusses these in further depth.

An instance of a scenario that brings about a need for a change in behaviour is underinvestment in R&D due to citizens' reluctance to take financial risks. Governments can offer taxation policies, incentives or other rebates to overcome reluctances by encouraging and assisting societies to assume otherwise unattractive tasks. Nowadays, the idea of externality remains a fundamental notion to modern welfare economics and to environmental economics. An OECD innovation report (2007) argues that reforms are required in order to ensure that public policy is increasingly conducive to innovation in many policy areas.

Governments may also assume a more direct approach in fostering innovation in terms of public investment in science and basic research that can play an important role in permitting additional innovation.

The above suggestions for direct and indirect governmental support for innovation require a suitable combination of direct and indirect instruments. Governments have a long-standing history in terms of proliferation of instruments that they implement in order to influence behaviours within their jurisdictions. The OECD report lists these as any of "tax credits, direct support and well-designed public private partnerships, support for innovative clusters and rigorous evaluation of such public support" (2007, p.5). Innovation policy makers' have recently started to uptake a wide range of instruments known as a 'policy mix' – a term derived from an economics-centric paradigm that emphasises the interactions between policies (For example see: Flanagan et al, 2011; Salamoun, 2002, 1989; Peters, 1997; Doern and Wilson, 1974; Dahl and Lindblom, 1953).

In summary, the ability of public policy tools to unravel social and economic problems constitute part of why these tools exist. They arose to accommodate man's need for them as they essentially steer citizen behaviour towards a desired result unravelling issues such as market failure. All the meanwhile mitigating the polarization that would likely, in their absence, otherwise ensue. This research aims to explore the policy instruments incentivizing R&D in New Zealand. The next subsection will review several differing definitions of R&D and briefly comment on the possible effects that the definitions of R&D may bring forth.

2.3 The R&D Definition Problem

There are many definitions of R&D across an extensive body of literature. R&D research (Sawyer, 2005) concerning the requirements for good policy design commissioned by the Royal Society of New Zealand uncovered valuable insights. The insights on the requirements

for good policy design included: “simplicity, low administration costs, low compliance costs, reliability and long-term stability; assured refundability; good visibility and transparency; and use of the OECD’s Frascati definition for R&D” (Sawyer, 2005, p.136). The last suggested requirement for good policy design stems from the ambiguity following use of the definitions given by the Financial Reporting Standards 13 (FRS 13).[2]

The New Zealand Institute of Chartered Accountants (NZICA)[3] separately defined “Research” under paragraph 4.2 in the FRS 13. ‘Research’ according to FRS 13 is an “original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding” (NZICA, 1995, p.3). Meanwhile ‘Development’ is defined under paragraph 4.1 as “the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services prior to the commencement of commercial production or use” (NZICA, 1995, p.3). NZICA later on changed FRS 13 to the International Accounting Standard 38 (IAS 38) ‘Intangible Assets’. IAS 38 has the same definition as previously with Research and Development defined separately (NZICA, 2004, p.15).

In examining the feasibility of the current R&D rules, and to identify areas of concern, the New Zealand Government decided to take counsel from a private sector R&D Liaison Group. New Zealand’s decision to make parallels between its own financial reporting standards with the international reporting standards seemed challenging. It brought forth concern by the R&D Liaison Group, who asked the Government to contemplate implications pursuant to the decision of tax rules joining the FRS 13. The predominant concern brought forth by the R&D Liaison Group at the outset is that there is a sweeping uncertainty regarding the definition of R&D (or lack thereof).

[2] Now International Accounting Standards 38 (IAS 38) - Para 57.
[3] Known as Chartered Accountants Australia and New Zealand (CA-ANZ) as at 1/07/2015.

One definition that is widely accepted by scholars (and recommended by the R&D Liaison Group) for use in New Zealand defines R&D as a means of advancing knowledge. The Frascati Manual definition (2002, p.30) defines R&D as involving: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". This definition alludes to R&D as one example of a driving force for innovation, and by way of association, a driver of competitiveness and economic performance. Another source of definition for what R&D activities comprise of is contained in the New Zealand Income Tax Act (ITA) 2007. R&D activities are known as Systematic, Investigative and Experimental Activities (S.I.E) under section LH 7(2) of the ITA 2007 which describes R&D as mainly concerned with acquiring new knowledge, creating new or improved products or services or other such activities.

In addition, while Statistics New Zealand (SNZ) does not directly define R&D, SNZ nevertheless defines innovation as "the introduction or development of any new or significantly improved goods, services (products), processes, or methods". This definition embraces a range of activities, as one constituent of innovation. The Frascati Manual defines R&D as an activity, which covers original, innovative and exploratory work systematically, conducted to increase the stock of knowledge. Sawyer (2005) found that both Australia and the UK, both prominent players in the OECD, use a definition of R&D eligible for concession similar to that given in the OECD's Frascati Manual. These countries will nominate an activity as R&D for tax purposes if it would be regarded as R&D under normal accounting practice, as qualified by what the meaning of research and development for tax purposes is (similar to Frascati Manual definition).

In conclusion, definitions of R&D for tax purposes tend to differ, sometimes significantly, from the OECD benchmark. However, one line of thought justifies the differing R&D

definition explaining that this is in order to meet the policy objectives of particular countries. Some R&D tax incentives are structured to deliver broadly based support, others target specific types of R&D or companies (e.g., new firms, smaller firms or non-taxpaying firms), and still others focus on regional objectives. Countries offer various types of accelerated deductions, bonus deductions or tax credits based on total or incremental spending. One OECD study (2002, p.8) describes: "The choice of approach - government research efforts, partnerships, direct support to business R&D, market-based incentives, etc. depends largely on the national context". This quote portrays an opinion that justifies the use of different government approaches in different national contexts as necessary.

While the support for using varied R&D definitions may be to achieve different policy objectives as far as the national context requires, the researcher disagrees with this justification, as perhaps a unified definition for R&D is more likely to reduce the ambiguity surrounding the definition of R&D (as referred to by the R&D Liaison Group above). The embracing of the Frascati Manual definition in particular has scholarly and reasoned economic backing and is preferable for comparative purposes. A unified definition for R&D would also limit the opportunity for discrimination against certain companies. For those reasons, the researcher believes that a unified definition of R&D is likely best.

2.4 The Black-Hole Expenditure Aspect

Governments generally attempt to support business by incentivizing R&D investment. Increased R&D Investment in OECD countries is likely an expected reality as research shows that R&D investment has grown steadily over the last few decades (OECD, 2011a). R&D incentives exist in part due to obstacles that stand in the way of those who wish to undertake R&D. One such obstacle is the non-deductibility of "black-hole" expenditure as the potential

for R&D expenditure to be treated as black-hole expenditure results in economic distortions (Inland Revenue, 2013, Para 2.5).

"Black-hole" expenditure (BHE) is a term given to business expenditure that is not deductible instantly for tax purposes. BHE is also not part of the cost of a depreciable asset for tax purposes which means that it cannot be deducted over time as depreciation (Inland Revenue, 2013, Para 1.2). As Sawyer explains (2005, p.115): "Black-hole expenditure occurs when a business incurs R&D costs which are capitalised, but the project is subsequently abandoned or scaled back because it is less successful than originally anticipated". This possibility of complete failure to claim back any tax on R&D expenditure creates a risk that may discourage businesses from undertaking R&D that they would have undertaken if deductions were available.

The New Zealand Government had recognised BHE as expenditure that proves valueless to taxpayers in that it is neither immediately deductible nor depreciable. In 2006, Inland Revenue published a discussion document that aimed to address the deterring effect of BHE after receiving several concerns from taxpayers. The document stated that the Government addressed BHE problems on a "case-by-case basis" (Cullen & Dunne, 2006, Para 3.29). For the sake of increasing R&D investment, it was important to address taxpayers' BHE concerns in a more robust manner. In an effort to mitigate the risk of undertaking R&D, taxpayers demanded certainty that particular expenditure incurred for their businesses would be eligible for tax deductions or amortisation (Cullen & Dunne, 2006, Para 3.30).

Better BHE management soon became a priority as a means to ensure neutrality in the tax system. A briefing note prepared for the Finance and Expenditure Committee (FEC) (Inland Revenue, 2005) proposed amendments targeted at BHE concerning reducing BHE-caused distortions discouraging R&D investment. The proposed amendments pursued the following:

> *"Allowing capitalised development expenditure to either be deducted over time as depreciation (where the R&D results in a depreciable intangible asset) or deducted upon the intangible asset being written off for accounting purposes (where the R&D does not result in a depreciable intangible asset)"* (Inland Revenue, 2005, p.4)

These proposed changes aimed towards encouraging taxpayers to undertake more R&D as the changes effectively cancel out some of the taxpayer reluctance to undertake certain types of expenditure and investment solely because of their tax treatment.

BHE's detrimental effect on R&D spending is an important aspect to consider for companies performing R&D. The New Zealand Government has therefore shown signs of progress by making amendments to R&D legislation over the years. The most recent noteworthy amendments to the Taxation (Annual Rates for 2015-16, Research and Development, and Remedial Matters) Act include allowing further deductions on BHE. These amendments aim to provide further certainty for taxpayers and create neutrality in the tax system that may overflow into creating more R&D spending.

2.5 Summary

The ability of public policy tools to unravel social and economic problems is in part the reason behind the tools' existence. This research aims to explore the policy instruments incentivizing R&D in New Zealand. The above sections have briefly reviewed several differing definitions of R&D. Definitions of R&D for tax purposes tend to differ, sometimes significantly, from the OECD standard. A unified definition for R&D would also limit the opportunity for discrimination against certain companies. For those reasons, the researcher believes a unified definition of R&D is likely best.

CHAPTER 3: CURRENT NEW ZEALAND R&D REGIMES & LEGISLATION

3.1 Introduction

This chapter will describe the past R&D Tax Credit, current R&D Grants and the new R&D Cash Out option, and identify the main themes and trends indicated by prior research by relaying the R&D journeys undergone and identifying precursors to the incentives. This section aims to add coherence to the existing body of knowledge of R&D incentives, identify gaps in current research, and indicate what this explorative research adds to the New Zealand R&D incentive body of knowledge.

3.2 Historical Overview / Recent Past

After a big drop in productivity and living standards through the early 1980's, New Zealand engaged in an ambitious process of structural reform (Stillman et al., 2008). Despite these efforts, the disparity in labour productivity persistently increased through the 1990's (De Serres et al., 2014). However, a number of remedies were suggested as means to increase R&D spending. The suggested remedies consisted of an update in accounting standards regarding R&D and several R&D legislative changes.

New Zealand's R&D journey has been marked by several changes in legislation. R&D tax provisions have existed in New Zealand since the 1970's. Section 144 of the Income Tax Act 1976 (ITA 1976) permitted a deduction for scientific research expenditure, though, R&D was not technically "scientific research" and had to be considered for deductibility under the broad provision of section 104. The Income Tax Act 1994 (ITA 1994) section DJ 9 similarly allowed for scientific research deductions for R&D purposes (s. BD 2 is the general provision to allow deductibility). Section DJ 9A of the ITA 1994 which had applied from

2001-2002 income year allowed further deductions on exemption from the capital limitation under section BD 2(2)(e) of the ITA1994.

While interest grew in R&D, New Zealand's R&D performance in terms of R&D spending remained significantly substandard relative to comparable Organisation for Economic Cooperation and Development (OECD) countries such as Australia. This led to increased consideration of the OECD recommendations and the implementation of a tax incentive for R&D. New Zealand's thirteen-year taxation rewrite project lead to the emergence of the ITA 1994, the Income Tax Act (ITA 2004) and afterwards the Income Tax Act 2007 (ITA 2007).

R&D related sections included DB 25-27 and DB 33-35, which gave rise to the R&D Tax Credit. This change in legislation was in part led by commissioned research, which had encouraged the creation of a R&D Tax Credit and urged the New Zealand Government to contemplate creating a Tax Credit for R&D (Sawyer, 2005).

On 25 July 2006, then Minister of Finance Sir Michael Cullen and Minister of Revenue Honorary Peter Dunne announced their support for the creation of the R&D Tax Credit in a business tax review discussion document (Cullen & Dunne, 2006, Para 3.9-3.10). This Parliamentary document reviewed possible initiatives for improving the New Zealand economy. The document clearly conveyed the Ministers' support of investment in R&D, suggesting that an R&D Tax Credit concession may level New Zealand's R&D spending and uplift New Zealand's ranking among other OECD countries. Their opinions were in support of R&D investment in paragraph 3.9: "The Government considers that there are wider benefits to New Zealand when businesses invest in R&D, export market development and enhancing skills in the workforce". As well as their support for the R&D Tax Credit in particular in paragraph 3.10: "These activities could be further supported by way of tax concessions, and, in relation to R&D at least, there is evidence that tax credits can be a more

effective way of supporting these activities than discretionary assistance". The R&D Tax Credit incentive creation was discussed in an Officials' Issues Paper (Inland Revenue & Treasury, 2006, Para 1.4) which also included possible designs for a R&D Tax Credit and emphasised that the New Zealand R&D Tax Credit should resemble that of Australia's in order to compete with Australia in terms of R&D investment from multi-national organisations.

The R&D Tax Credit legislation was presented to Parliament in 2007. The Finance and Expenditure Committee (FEC) received submissions containing 73 issues on the proposed legislation (Dunne, 2007, p.33). The large number of submissions received and the consideration in those documents conveyed an avid interest in the R&D Tax Credit from many businesses and research entities. As the R&D Tax Credit would be available for practically any firm undertaking R&D that meets the criteria for the credit, the most highlighted issue entailed whether or not the credit's scope had grounds for sustainability. Heath (2002) argues that the premise of the R&D Tax Credit existing on a temporary basis would hinder real increases in R&D spending. Therefore, much caution or "tentative steps", as Sawyer describes (2005), were taken in drafting New Zealand's R&D Tax Credit to diminish the need for future changes to the regime and to portray the scheme as lasting. However, given that a review would occur within three years of the R&D Tax Credit, this may have slightly distorted immediate investment.

The enactment of the R&D Tax Credit occurred under Part LH of the ITA 2007. In 2007, the New Zealand Government, (at the time led by the Labour Party), announced a 15 per cent R&D tax-credit effective from the 2008 income year. The R&D Tax Credit was announced with the hope that it would help New Zealand generate additional R&D, increase productivity and gain a more competitive position in the international marketplace (The Treasury, 2008,

p.9). On 17 May 2007, the 'Business Tax Reform – R&D fact sheet' released by Inland Revenue Department as part of the 2007 Budget explained the dynamics of qualification for the R&D Tax Credit.[4] Further details on the R&D Tax Credit were released in an Inland Revenue Tax Information Bulletin (2008). The document delved further into the documentation requirements for businesses wanting to apply for the credit in the 2008-2009 years onwards. This requirement led to businesses upgrading their systems to ensure they qualify and report accurately on their R&D spend after the Bill was passed in late 2007 (Robinson, 2009, p.16).

However, early in October 2008, due to a change in government and despite the potential of the R&D Tax Credit, the Tax Credit was repealed after being in place for under a year. Some have considered this "wasteful" (Hembry, 2008); this was especially so as the setup costs had already been sunk. Overall, the decision to repeal the credit came as somewhat of a surprise, especially considering that the removal of this tax incentive was from a political party associated with being "pro-business" (Chapman Tripp, 2008).

The National Party released a special report which announced the Party's desire to repeal the R&D Tax Credit on the basis that the design of the credit was substandard. Uncertainty of real benefit, difficulty in making financial arrangements (budgeting), and the credit's ineffectiveness at generating new R&D and merely compensating those already engaged in R&D activities were the main areas of concern (Inland Revenue, 2008). The explanatory note of the Taxation (Urgent Measures and Annual Rates) Bill explained:

> *"The Government's objective in repealing the tax credit is to move towards a broad-based low-rate tax system, which will improve the quality of investment and reduce distortions. Removing the R&D tax credit will also partially fund*

[4] See Inland Revenue Department Tax information Bulletin: Volume 20(3) (April 2008) pages 37-64.

the reduction in personal tax rates. The Government considers the benefits of reducing tax rates are certain, whereas the benefits of the R&D tax credit are less certain. The Government is concerned that much of the credit will fund R&D that would have occurred in any case, the compliance costs associated with claiming the credit are high and that the credit will be paid out on standard operating expenditure re-characterised as R&D related expenditure."

The New Zealand community also found this announcement unexpected as well as unwarranted and there followed a wave of discontent when the freshly voted National led Government fulfilled the repeal of the R&D Tax Credit in December 2008. Prime Minister Helen Clark and Science and Technology Minister Honorary Pete Hodgson declared: "Across New Zealand people are astounded at National's short-term and short-sighted policies which would take away support for fast-growing research-driven companies and industries" (Otago Daily News, 2008). Tax experts and chief executives across the country have commented that the only way to accurately assess the regime's effectiveness in the true long-term is if it had remained for more than a single income year (Robinson, 2009).

Much of the debate among politicians was recapped on the media. While these sources generally hold a lower degree of rigour and are considered less resilient compared to academic research, some of the comments obtained from media sources were considered in this research. This is because it had become clear that this repeal was driven by politics as the decision to repeal the Tax Credit came forth from a change in government; it was put down to politicization rather than sound economic reasoning. Therefore, while tentatively approached, the researcher is to cast some attention upon the media-related outspokenness from political parties and tax practitioners, as these sources are indicative of political atmospheres surrounding the repeal.

As mentioned above, accurately assessing the regime's effectiveness in one income year was considered unfair. This stance was taken by Chief Executive of Manufacturers and Exporters Association, John Whalley, who believed that while New Zealand needed the tax cuts, the funding for the cuts had come from the wrong places (referring to the discontinued R&D Tax Credit). Whalley discredited National Prime Minister John Key's statement below claiming that it was "daft" considering that the Tax Credit had only been around for the sum total of one income year.

Whalley's comment was in response to Prime Minister Key's assumption concerning the yielded benefit (or lack thereof) of the R&D Tax Credit. The statement in question documenting Key's reluctance towards continuing the R&D Tax Credit is as follows: "It's clear that the Tax Credit has created a lot of business for tax accountants and tax advisers, but evidence of real increases in R&D is harder to find." (Key, NZ Herald, 2008). Whalley further lamented that National's decision to axe the Tax Credit would put New Zealand in a worse position. "New Zealand was once at the bottom of the OECD in terms of policy support for R&D spending, this change will put us back in last place." (Whalley, NZ Herald, 2008).

However, the technical reasons for the repeal by National appear to be fivefold. They include spiralling fiscal cost behind the incentive, the increase in compliance cost of hiring advisors and tax practitioners involved in filing returns, policy incompatibility with regards to being opposite to the objective of moving towards a broad-base low-rate system, redundancy in that the activities of R&D would likely occur whether or not the incentive is there, and lastly, having firms employ recharacterisation to make their expenditures fit the eligibility criteria. (Bowler-Smith, 2014, p.8)

Following the removal of the R&D Tax Credit, the Government announced a shift of focus on Business R&D with a total allocation of $321 million for new initiatives within Research Science & Technology (RS&T) over the following four years (The Beehive, 2010). This funding offered fiscal support towards high-performing, science, research and technology driven firms and was distributed in four main ways. As summarised by a Tax Insights Factsheet by KPMG (KPMG, 2008, p.1). First, the Technology Development Grant aimed to support R&D programmes in New Zealand firms with a strong record of substantial R&D investment in high-value products and services. It provided funding equal to 20 per cent of a firm's R&D budget, up to $2.4 million a year, for 3 years. Secondly, the Technology Transfer Vouchers, which were aimed at helping firms with a lack of internal R&D capability in a specific area to commission, research from accredited organisations. It provided 50 per cent funding towards business R&D projects. The vouchers were to be project-based and were worth between $100,000 and $1 million. Thirdly, the Technology New Zealand - Technology Fund, which provided support for potential high growth companies to undertake R&D projects to develop new technology products, processes or services. A number of Grants were available on demand that generally provide 50 per cent project funding. Fourthly, the Technology New Zealand - Capability Fund. This funding was available to support development of R&D skills within business (e.g. Mentors).

The following year's Budget announcement (The Treasury, 2011) took place on 2 May 2011. The Prime Minister had placed science and innovation at the heart of the economic growth agenda. The ministry of science and innovation (MSI) was created to bring together different functions to one organisation to deliver better results. The Government announced that there was a rigorous re-prioritisation process of RS&T. This freed up $109.8 million over four years to support government priorities. The focus that year became supporting new schemes to lift business R&D following pressure from outside entities to address this.

The Minister of RS&T positioned a clearer set of priorities for future investment, which he claimed was conducive to economic growth that included: "developing a coherent set of business R&D support schemes that work across the spectrum of business needs." (The Treasury, 2011, p.5). This was to achieve more transparency and be strategically possible within the means of government policy, and believed to lead towards the wider goal of achieving economic growth. It also meant that many worthwhile business R&D projects would not be funded. The Government justified this by hypothesizing that firms may decrease their interest in R&D spending and the Government may lose the drive to quicken investment in R&D if excess demands persisted in the business R&D schemes (The Treasury, 2011, p.8).

In the 2012 Budget announcement (The Treasury, 2012) released on 29 June 2012, the MSI was working towards three general outcomes: "greater prosperity, improved health and well-being, and a healthy environment." (The Treasury, 2012, p.3). The four year budget plan addresses the fundamental issue New Zealand is facing in terms of very low levels of business expenditure on research and development (BERD), compared to the OECD average. The report describes BERD as having close links with productivity and economic growth and states "New Zealand's BERD is 0.52 per cent of GDP compared to the OECD average of 1.2 per cent of GDP." (The Treasury, 2012, p.6). These figures shed light on the need, at the time, to refocus on incentivising business to increase their investment in R&D. Especially in the high value manufacturing and services sector (HVMS). This is attempted by creating an entity named an Advanced Technology Institute (ATI). The report also states: "in light of recent evaluations of the Tech New Zealand programmes, MSI is developing policy options for re-designing tools that encourage business R&D. This work is at an early stage; so it is too soon to know if changes can be made within existing appropriations or if they will require

changes between appropriations" (The Treasury, 2012, p.16). This would eventually lead to the start of the discussion on which incentives work best to achieve these outcomes.

In the 2013 Budget announcement (The Treasury, 2013) released on 5 July 2013, the Government decided on new R&D incentives to support innovation. Additional innovation funding brought new designs that declared a shift to a market-friendly approach. The Government included proposed the following changes to three existing research support programmes and an "incubator" programme (The Treasury, 2013, p.2):

1. "The R&D Growth Grants (previously named Technology Development Grants) will be expanded. Eligibility criteria will be widened, and the subjective judgement stage by officials eliminated. These changes will make the programme simpler and more predictable.
2. R&D Project Grants will be reduced in size, to partially fund the expanded Growth Grants. The new Project Grants will have lower rates of public co-funding, and be targeted to firms that are new to R&D.
3. R&D Student Grants, supporting students to work in research active businesses, will continue, but with a greater focus on the benefit to the student.
4. A new repayable Grant for capital-intensive start-ups will be trialled, working in conjunction with current incubator programmes."

Moreover, in relation to black-hole R&D expenditure and in an effort to provide an environment that supports business R&D, the 2013 Budget announced proposed changes to six areas of black-hole expenditure. This was in order to permit further areas of black-hole expenditure to be deductible for tax purposes.

These updates were welcomed by the Treasury on the basis that the simple R&D Growth Grants would provide more certainty for businesses. These Grants would be administered by

Callaghan Innovation (CI) - a government agency who asserts that it possess "the talent, resources, knowledge and connections to drive better integration, co-ordinate networking and get value out of gaps and opportunities across the innovation system" (Callaghan, 2012). In December 2012, CI was introduced by the Crown in a bill titled Callaghan Innovation Bill (2012) and under Subpart 1 - section 13(1) (a-j) the functions of Callaghan Innovation which replaces the ATI were comprehensively established in the bill.

R&D incentives started to take form further in the 2014 Budget where the most significant of the tax changes, and one that is foreshadowed by the progression of budget updates, was the announcement of two initiatives in relation to R&D expenditure. The first initiative is confirmation of a policy that will allow R&D intensive start-up companies to R&D Cash Out all or some of their tax losses rather than carrying them forward until they become profit-making ventures. The second initiative was to further address black-hole R&D expenditure by allowing all capitalised expenditure on depreciable intangible property to be deducted over time. That is by allowing a one off deduction for capitalised expenditure on intangible property, which is written off for accounting purposes. These initiatives would add an estimated extra $58 million towards R&D tax deductions by start-up firms (Inland Revenue, 2014, p.1-2).

The latest development since then is the new law - Taxation (Annual Rates for 2015-2016, Research and Development, and Remedial Matters) Act. This law addresses the previously mentioned "black-hole" expenditure and cashing-out of losses for R&D expenditure. The proposed changes focus on R&D intensive start-up companies, and aim to lessen their risk of encountering market failures arising from the current tax treatment of losses. The Act permits tax loss-making research and development (R&D) companies to cash out their losses. An

incentive created to allow a temporary timing benefit for loss-making companies (Inland Revenue, 2015a, p.2-3).

In terms of the "black-hole" expenditure, the Act explains that the proposed amendments aim to achieve the following:

> *"Reduce distortions discouraging investment in R&D caused by current tax law, under which development expenditure incurred subsequent to the recognition of an intangible asset for accounting purposes is generally unable to be deducted for income tax purposes. The proposed amendments seek to allow capitalised development expenditure to be either deducted over time as depreciation (where the R&D results in a depreciable intangible asset) or deducted upon the intangible asset being written off for accounting purposes (where the R&D does not result in a depreciable intangible asset.)"* (Inland Revenue, 2015a, p.4-5)

However, the issues that still exist include the low R&D investment spanning over many years, which still poses an important problem, yet remains un-tackled. For example, the notion of the Government picking "winners" by attributing the greatest amount of funding towards companies that already perform well within the paradigm that wealth would create further wealth (Green Party of Aotearoa New Zealand, 2014). In addition, the issue of whether these grants really lead to increased and new R&D investment or simply provide this funding to projects that would have occurred in any case (Robinson, 2009).

Shaun Hendy, (physics Professor at University of Auckland) is an open supporter of the R&D Tax Credit and comments: "It's only growing at about the rate that we've seen for the last few decades so it's not like we've seen a supercharge in business R&D. There's positive trends in our ICT sector - computers and software-as-a-service - we've seen a big growth in research

and development spending there but we're actually seeing a decline in spending in our manufacturing sector and in our primary sector" (NZ Herald, 2015). Hendy continues to state that, in his opinion, the best way for the Government to increase R&D spending is to re-establish tax-credits. The media releases and submissions arising in this period imply that the R&D incentives have yet to elevate New Zealand's R&D performance to where it needs to be for New Zealand's R&D spending to come into parallel with other OECD countries.

More evidence suggesting the countrywide reluctance to accept the removal of the R&D Tax Credit stems from New Zealand based research undertaken in 2009. Robinson (2009) undertook research that centred on the old R&D Tax Credit and asked practitioners what their reactions and opinions were as to the removal of the credit. Robinson noted that there had been no litigation on the topic of R&D in New Zealand. Robinson hypothesized that this is the case for one of two reasons: firstly, the provisions were clear enough and the definitions concerning each research and development were relatively easy to work out. However, he also stated that the inexistence of cases could instead reflect the lack of interest in R&D.

A 2013/14 Annual review of CI has summarised that in the two years since its launch, CI has carried out almost 1000 R&D projects for over 300 different businesses. It has approved nearly 1,500 R&D Grants for almost 1000 businesses, placed over 700 students in nearly 300 businesses, and assisted over 100 companies with innovation engagement plans for their product development strategy and company growth. However, as of recently, CI has been at odds with two bodies: Trends Publishing International and Gameloft.

On 12 May 2014, an article published on the Callaghan Innovation website announced that CI had approved fifteen high tech companies for the R&D Project Grants. The companies had been chosen on the basis that they have shown "a strong commitment to research and development conducted in New Zealand" (Callaghan Innovation Website, 2014a). Trends

Publishing International was among the fifteen selected companies. Trends received a three-year Growth Grant on 31 March 2014. The total amount received was a total of $313,536.70. However, on 17 December 2014 CI released a statement that announced the suspension of a R&D Growth Grant given to Trends. This follows auditing Trends' funding claims and questioning the legitimacy of Trends' claims against the approved funding, this ended in CI notifying the Serious Fraud Office (SFO) (Callaghan Innovation Website, 2014a).

The conflict began when a Big 4 accounting firm released a report that showed possible breaches of the grant. The company had projected false or misleading information concerning staff costs associated with R&D. The company further had no comprehensive project management documentation, and had made expenditure claims that they are unentitled to such as director's life insurance premiums. The Callaghan Innovation Act (2012), which came into effect on 11 December 2012, puts forth that breaches to the terms of Growth Grant funding agreements may incur remedial action, contract termination and the requirement to repay funds paid plus interest.

Trends soon suffered a cash crisis and therefore made a proposal under Part 14 of the Companies Act 1993 (CA 1993) to compromise their debts; a majority of creditors approved this compromise at a meeting held on 22 May 2016. However, CI led legal action against Trends on 7 September 2016 alongside three other challenging creditors that voted against the proposal (*Advicewise People Ltd v. Trends Publishing International Ltd, 2016*) on the basis that the proposal was not valid and the resulting compromise is not binding on the affected creditors. CI has won this round of legal proceedings against Trends. This may bring forth that all grant recipients are regularly monitored by CI to deter fraudulent claims and ensure the intent of the policy is met. Trends brought a counterclaim against CI for "unlawful suspension and later termination" and demanded damages in terms of defamation to the

Trends business, brand and staff. The counterclaim has been set down for hearing in November 2016.

In another instance, CI encountered predicament regarding a previously awarded grant. Similar to the above scenario, an article posted on 27 February 2014 on CI website announced Gameloft as among 19 other high tech New Zealand businesses that were selected to receive the R&D Growth Grant. The company had shut down operations in their Auckland subsidiary leaving staff out of work. The company is yet to be put into liquidation. The issue is the status of whether the grant amount or part of it could be paid back. CI is seeking a legal opinion as to whether they are entitled to the outstanding amount. No official statements have been released on the CI website in relation to Gameloft as of yet.

The examples above raised key issues for the Education and Science select committee:

> *"The policy question of whether grant making should be automatic once the criteria are met, or whether a more discretionary approach might make better use of resources. Secondly, a number of operational issues arise, including the need to manage transnational company acquisitions, the transparency of applicants' information, and the relevance of their research, in a way that makes the best use of available resources"* (Parliament, 2015).

These situations may also highlight similar conclusions to those which Robinson (2009) had attributed to the lack of litigation. Perhaps the emergence of the litigation suggests increased engagement. Alternatively, perhaps this litigation goes to show that there has been increased complexity as of recent that has caused conflicts. This offers insight towards the degree of success of the current regimes.

3.3 New Zealand R&D Performance Relative to OECD

The latest R&D survey conducted by Statistics New Zealand (SNZ) and the Ministry of Science, Research and Technology (MoSR&T) showed that while business expenditure on R&D increased, our GDP has increased by more (Statistics New Zealand, 2014). As a result, R&D expenditure as a percentage of GDP has decreased from the 2012 survey. Since New Zealand first reported its R&D spending as a percentage of GDP to the OECD in 1989 and between the SNZ surveys taken between 2002-2014, New Zealand has always spent between 1.16 – 1.27 per cent of its GDP on R&D. This produces the New Zealand average of 1.22 per cent for GDP spent on R&D, and is a poor performance compared the OECD R&D spending average, which has been over 2 per cent of GDP since 1982 and ranges from 2.19-2.40 per cent between 2002 to 2014 (OECD Factsheet, 2014).

Robinson (2009) also concluded that when there was a lack of R&D incentives in New Zealand, the accuracy of New Zealand's figures could be called into question given the lack of motivation for New Zealand businesses to track and classify their R&D activities. Nonetheless, it remains an alarming prospect that the aforementioned figures would put New Zealand's performance as ranking 29th out of 35 OECD countries for R&D spending as a percentage of GDP. Given that expenditure on R&D is said to be a "key indicator of countries' innovative effort", this suggest that not only is New Zealand a weak contender when compared to OECD countries but that maybe New Zealand's innovative efforts are lacking and would hence hinder New Zealand's goals of achieving prosperity through continued economic growth (OECD Factsheet, 2014).

Table 3.1 below shows New Zealand's R&D spending as a percentage of GDP over a period of 8 years. The 2008 figure shows an increase of 17 per cent from 2006's figure. This increase seems to continue into the following two years where in 2010 the figure increases

from 2008 by 13 per cent. The trend continues into the following two years and shows an increase of 10 per cent in 2012 from 2010. However, in the 2014 year survey the figure increases by less.

Table 3.1 – 'NZ's R&D Spending as a percentage of GDP Spanning 8 years'

	2008	**2010**	**2012**	**2014**
Total R&D Expenditure	2.1 Billion	2.4 Billion	2.6 Billion	2.6 Billion
Total R&D Business Expenditure	900 Million	1 Billion	1.2 Billion	1.2 Billion
R&D Spending As % of GDP	1.2%	1.3%	1.27%	1.27%

While the trend portrayed New Zealand as increasing its R&D spending as a percentage of R&D, the facts remain to prove that while a step in the right direction, much improvement is needed still. As a comparative outlook, in 2010 New Zealand's R&D spending as a percentage of GDP was 1.3 per cent. While that figure may be a step forward in terms of it being higher than the previous two years indicating advancement, it is yet well below the OECD average of 2.38 per cent. This shows that New Zealand's R&D spending is far from level with the OECD average and may indicate that a drastic change may need to occur to improve New Zealand's performance.

Since the change of government and the removal of the R&D Tax Credit in 2008, the National Party have changed their stance in terms of addressing the issue of New Zealand underperforming in R&D spending compared to other country members in the OECD. Initially in 2006, the National Party stated, "The focus on R&D spending as a percentage of GDP is useful but not the whole story. Creating economic growth is not as simple as increasing R&D spending". However, the National Party seems to emphasise increasing R&D spending as a percentage of GDP. In the 2012 budget statement, the National party

channelled their disappointment in the gap between New Zealand and OECD R&D performance toward designing new incentives to support business R&D.

The National Party has since equipped CI with the objective of supporting business R&D investment to reach 1 per cent of GDP by 2025; in the 2013/14 year, the proportion was 0.58 per cent. Given New Zealand's low rate of business investment is a barrier to achieving this target; it is no surprise that National now wishes to terminate this barrier (Parliament, 2015).

3.5 Summary

Arguably, New Zealand has remained to be out of step with its fellow OECD country members to have only recently adopted an R&D incentive. New Zealand has since introduced a variety of incentives that were utilised to increase New Zealand's R&D spending. New Zealand has facilitated an R&D Tax Credit, R&D Grants, and as of recently an R&D Cash Out of losses option. Despite the short lifespan of each of these R&D incentives, the New Zealand journey is one worthy of exploration. The overview in this chapter reveals a notable lack of qualitative research that examines all R&D incentives in the New Zealand setting, a gap that this research attempts to address. This research aims to understand which R&D incentive is likely to be most effective in the New Zealand context, in terms of equity, certainty, convenience, and economy.

While the R&D Cash Out option is still in its infancy, a tentative analysis will be used to study the R&D Cash Out incentive for the first time, to the researcher's knowledge. Due to the Cash Out R&D incentive's recent assent as law, this research merely aims to make conjectures in terms of the effectiveness of this option compared with the other available options to New Zealand. In addition, the lack of qualitative research on R&D Tax Credits leaves a gap in the literature. Moreover, since the removal of the R&D Tax Credit in New Zealand, there has been significantly less research on this incentive and therefore revisiting it

provides a good contribution to the literature. The last incentive studied is the new R&D Callaghan Innovation Grant incentive. This incentive has been used in New Zealand since 2013; though, limited research has been conducted on this incentive in New Zealand despite the vast opportunity to do so. This is another gap that this research attempts to address.

CHAPTER 4: RESEARCH QUESTIONS, METHODS AND METHODOLOGY

4.1 Introduction

This chapter describes the research development, design and theoretical framework, methodology and research tools operated to address the research questions listed below in section 4.2. The literature review highlights the motivations for the researcher to undertake this research and argues that there is limited qualitative research that looks into all past and current New Zealand R&D incentives collectively.

There is no academic research, to the researcher's knowledge, which exists on the R&D Cash Out incentive. This is reasonable given that the incentive is only in its infancy and has never been used overseas. There are limitations in being able to add significantly to the body of research on this incentive since the R&D Cash Out incentive has not been in place for an adequate period to be sufficiently studied. However, for the same reason the researcher wishes to initiate research in this area to provide early understanding of the incentive and a foundation for future research to build on this understanding.

The earliest R&D Grant recorded in the Callaghan Innovation database was first awarded in 2013, yet research remains woefully scarce. This lack of research forms a motivation for the researcher to conduct this research as it provides an opportunity to contribute to the literature by remedying this gap. An extensive amount of research exists on the R&D Tax Credit, however it is mostly quantitative . Given there is considerably less qualitative research available on the R&D Tax Credit, this is also a strong motivation to conduct qualitative research on this incentive and add variety to the existing literature.

Section 4.2 of this chapter lists the research questions to be explored in this study. Section 4.3 describes the theoretical framework that guides this research project. Section 4.4 presents the

qualitative methodology employed to address the research questions. In section 4.5 a brief summary of the eligible evaluation frameworks is given, explaining the strengths and limitations of each approach. Section 4.6 describes the use of Adam Smith's (1776) principles for this research. The research tools used in this research project are discussed in Section 4.7. Finally, section 4.8 provides an overall summary of this chapter.

4.2 Research Questions

This project seeks to evaluate which of the three New Zealand R&D incentives is likely to be considered the most effective. Exploratory research is conducted, using Adam Smith's (1776) Principles of Good Taxation as the standard for comparison across the three incentives at hand.

This inquiry will involve the following main processes:

- Exploration of each incentive's merits and shortfalls individually;
- A comparative analysis of selected R&D incentives; and
- A critical evaluation concluding which incentive(s) is/are likely most effective

This research project proposes three research questions:

RQ1: Why did each incentive come into being? (Policy intentions)

RQ2: How does each incentive fare when benchmarked against Adam Smith's Principles of Good Taxation?

RQ3: Which incentive(s) is/are likely most effective according to the above assessments?

To answer the first question, a literature review was conducted in chapter 3 to document historical interactions leading the creation of the incentives. Additionally, an information table synthesised in the discussion section (chapter 5) is created in order to capture the

information available on each incentive in a single snapshot. This involves using four main criteria that emerged from the literature review as representing most significant areas of R&D incentive discussion (e.g. eligibility criteria, amount of incentive available, etc.). This step allows visual comparison of the differences and similarities between the incentives.

The second research question is answered by gathering critical observations and comments from the first two steps and illustrating the understanding gained in table format (Table 5.1) which benchmarks the findings against Adam Smith's (1776) Principles of Good Taxation. The second table in Chapter 5 (Table 5.2) also visually depicts where each incentive stands when cross-comparison takes place among the incentives.

Research question three is answered following the creation of the second table which benchmarks the incentives against Adam Smith's principles. A rudimentary scale will be used to assess which incentive(s) is/are likely considered the most effective. Further explanations as to how and why these approaches were chosen and deemed appropriate by the researcher will be provided at the end of this chapter.

4.3 Theoretical Framework

4.3.1 Institutional Theory

An institutional theoretical framework is used in this thesis. The researcher utilises this framework to examine the influence of political and social institutions in New Zealand and to evaluate the impact of institutional factors on policy development in relation to R&D incentives. The adoption of the institutional framework enables exploration of how the State, interest groups and individuals influence the tax policy area, and the degree to which policy outcomes reflect the preferences and influence of these groups.

There is a large body of research on institutional theory but no one, unified view of what this framework specifically involves. Scott (1987) explains that there is a wide-range of definitions available for what constitutes institutional theory, and even for what constitutes an institution. Thelen and Steinmo (1992, p.2) explain that institutional theory is concerned with the entire spectrum of political and social institutions which contribute greatly to shaping political "actors" in terms of the way these political actors then define their interest and exert their influence on other groups. Institutions include many forms and even government structures. North (1990, p.3) explains that institutions are systems which provide constraints which shape how humans interact. Considering these comments, and for the purposes of this research, the New Zealand Government will be treated as a formal institution and taxpayers as a social institution.

Agency theory supplements the above framework as one mode of clarifying the motives behind the interactions, which occur between the previously mentioned groups and policy formation. Agency theory describes a relationship in which the principal delegates work to an agent (Eisenhardt, 1989). As policy formation is a process that transpires within the context of society, appropriate emphasis on the meanings and exchanges of institutional players is necessary to enable awareness of the wide range of factors that have led to the current outcomes. In adopting the institutional framework there is a goal to 'clarify' the situation in New Zealand using a critical realism lens to highlight the contribution and the motivations of institutional variables in generating policy outputs.

The researcher recognises that alternative theoretical frameworks may also have the potential to unlock insights into this study, however, the researcher believes that institutional theory provides the greatest potential in unlocking insights for the exploratory study at hand. This is attributed to institutional theory's ability to provide guidance to the researcher in considering political and social implications of interactions within and outside institutions. Consequently,

it was deemed appropriate to apply institutional theory as the theoretical framework for the analysis undertaken in this thesis due to its solid association with the field of political science.

Marriott (2010) endorsed the adoption of institutional frameworks as facilitating analysis of the degree to which policy outputs reflect the influence of interest groups and individuals, specifically their "impact on the tax policy area." (Marriott, 2010, p.26). Political institutionalism in particular has been used for the analytical purposes of this research as R&D in itself is largely political. This is highlighted in the literature review in chapter 2 and illustrated by the removal of the R&D Tax Credit, despite its promise, due to a change of government. This understanding is further exemplified by research undertaken by political institutionalism scholar Steinmo (1993, p.10), who relays that government and the structure of political institutions are key influences in taxation policy change. This perhaps suggests that such policy decisions are backed by, - and reflect - political agendas and economic reasoning. Steinmo (1993) also highlights the Government's susceptibility to agency. Hence the chosen framework will be supplemented by agency theory. Eisenhardt (1989) describes agency theory as a relationship concerning an agent and a principal. The principal issues work to the agent who then preforms that work. Likewise, the researcher utilises agency theory in this research by assuming that the tax advisors (the agent) work for the best interest of the company in which they operate (the principal) by advising taxpayers on the tax laws passed by the Government.

It is important to mention that this thesis does not attempt to analyse whether increased R&D spending does actually lead to innovation, as there is recent thorough research that explores this area (e.g. Köhler et al. 2012). Rather, this thesis attempts to specifically single out the past and current New Zealand R&D incentives, cross-compare them and decipher which R&D incentive is likely to be considered the most effective following a 3-step evaluation (mentioned above under section 4.2). This evaluation highlights the R&D experiences of

New Zealand leading to the current policy designs, emphasising the underlying principles to the directions taken in drafting the policies and assessing whether the rationales discovered coincide with what New Zealand's business environment needs or wants.

4.4 Research Approach

This section outlines the research approach undertaken in this research. As highlighted in the literature review section, most research concerning R&D incentives across time is associated with the use of a quantitative research approach. For example, Bernstein, 1986; Dagenais et al, 1997; Bloom et al, 2002; Köhler et al. 2012 all employ a quantitative research approach in their work. With only some qualitative research recently emerging in New Zealand, there is a recognizable gap in R&D incentive literature using qualitative methodology. Further, as mentioned previously the aims of this study are to evaluate which New Zealand R&D incentive is likely to be considered the most effective by benchmarking all the incentives against Adam Smith's (1776) Principles of Good Taxation. This concerns research of an exploratory nature, hence, an investigation utilising qualitative methods was deemed appropriate.

King and Horrocks (2010) identifya significant difference between quantitative and qualitative research. Unlike qualitative research, quantitative research demands a statistically representative sample as the subject of the study in order to claim generalisability. In qualitative research more emphasis exists on the sample representing a variety of participants. This is to facilitate for finding meaningful differences in experiences. As this project concerns social and political contexts and influences, there is a lack of need to find a rational or empirical result that tends to be detached from the mentioned contexts. Rather, the emphasis is on the exchanges between institutions and processes. For example, the exchanges

between the Government and the taxpayers, or between Callaghan Innovation and the Government.

Further, the ontological stance taken by the researcher is that of a critical realist. The data collected for the purposes of this research is perceived through the lens of critical realism. These ontological beliefs identify that reality exists as a concrete structure, but also recognise that there is room for social construction to build on perceptions of that reality.

A researcher undertaking the epistemological stance of objectivism and the ontological stance of realism embraces positivism generally. A positivist researcher would consider the world an entity that exists regardless of our view of it (Crotty, 1998, p.8). This view is considered "naïve" by Guba and Lincoln (2005, p.195-203) who criticized the simplicity of this view of realism. Williams and May (1996, p.27) similarly argue against positivism, yet, they nonetheless recognise it as an extremely influential theoretical perspective. They state that positivism is "one of the heroic failures of modern philosophy". The researcher agrees that the positivist stance is in great contrast to our idiosyncratic world. On the other hand, the other extreme is non-positivism or interpretivism. This framework focuses on understanding social reality based on subjective interpretations of the researcher. Unlike positivism, this framework stems from inductive reasoning and holds that a researcher filters their interpretation of a social reality through their own view, beliefs and knowledge (Carroll and Swatman, 2000, p.237). That is that the researcher cannot be completely objective or unbiased from the subjects under study but rather view reality from a subjective lens. The researcher also takes this stance in the present research as this model allows for "how" and "why" questions to be asked in an attempt to understand the actual and complex "reality" which surrounds the relationships under analysis (McKerchar, 2010).

Bordens and Abbott (2008, p.3) draw a parallel between research and science as research does not only concern revealing new knowledge but research further involves thinking and viewing the world. Identifying gaps in previous literature looking at R&D incentives and considering my own motivation for this research, the paradigm chosen to conduct the research is guided by critical realism, a paradigm that combines transcendental realism with critical naturalism (Archer et al., 2013, p.3). McKerchar (2010) recognised that the critical realism paradigm (sometimes referred to as "post positivism") is aligned midway between positivism and interpretivism.

4.5 Evaluation Framework

This section outlines and justifies the benchmarking system chosen for evaluation purposes of the research project. This project presents exploratory qualitative research as mentioned in the section above. Among the main aims of the study is to evaluate which of New Zealand's past and current R&D incentives are likely to be considered the most effective. This process is carried out by evaluating the incentives facilitating Adam Smith's (1776) Principles of Good Taxation. Alley and Duncan (2005) use a business metaphor to explain in simple terms the importance of adopting well-established principles to design a robust tax system. They liken utilising governing tax principles to guide the creation of a sound taxation system to vision, mission and values. Alley and Duncan write, "The vision constitutes the purpose of taxation. The mission identifies the forms of taxation and the methods of administration, collection and enforcement. The principles equate to the values that underlie the tax system" (Para 10, p.582). These principles, which are used as governing standards in the process of creating a tax policy, shape the effectiveness of the resulting policy. Hence, this project uses benchmarks (governing principles) to evaluate the effectiveness of the past and current New Zealand R&D incentives.

In terms of choosing the particular evaluation principles for purposes of this project, the researcher recognises the existence of several evaluation frameworks that can be used to study R&D incentives. However, certain elements have been considered in choosing the evaluation framework for the thesis. Some evaluation frameworks that have the potential to offer insights into this exploratory research project are briefly mentioned in the subsections below.

4.5.1 The Tax Working Group's (TWG) Principles

The Tax Working Group (TWG) wrote a report (2010) aimed to identify issues within the New Zealand tax system, which in the group's opinion required addressing. The group elaborated on options for reform focusing on six governing principles of a good tax system: efficiency; equity; integrity; fiscal cost; administrative cost; and coherence. The researcher deems the use of these principles appropriate for outlining what the overall tax system should look like (i.e. the big picture). They are, however, less applicable to the specialised area which this research investigates. Due to the thesis of this study research which explores one small area of tax policy (as opposed to the entire tax system as a whole), a "big picture" approach is less likely to be appropriate for the "small picture" detail under examination. While principles that the TWG use, such as equity, fiscal and administrative cost are applicable to R&D incentives as they determine the extent of sustainability the incentive (a key part of the survival of the incentive), other principles such as coherence and integrity are aimed at reviewing the tax system as a whole. Hence, the TWG criteria make sense for examining the entire tax system rather than examining three different ways of managing a small, yet important aspect being the R&D tax incentive.

4.5.2 Cedric Sandford's Principles

Sandford (1993) suggests three elements to a tax reform that leads to high performing tax system. The three elements include firstly, the extent to which the reform met the objectives of the policy makers. Secondly, the sustainability of the reforms, which has close nexus with certainty as one of the reluctances of practitioners to adopt the old R&D Tax Credit, was the concern that the Government was to repeal this incentive and inevitably, it did. Hence, this criterion is relevant to this topic. Thirdly, the magnitude of desirable or undesirable by-products. This criterion has nexus with the integrity or coherence principles listed from the above example as this principle considers the possibility of fraud and how that would endanger the overall tax system. Again, this is looking at the issue with a 'big picture' approach; however, the approach needed for this research is foundational and well established criteria to initiate research on a specific tax issue.

4.5.3 Additional Principles

Other principles have emerged over time from a standard text in the United States (Madeo et. al., 1995) including but not limited to: productivity, visibility, and political consideration. However, these principles are not universally used. Moreover, due to the limited scope of this thesis, there are constraints in being able to carry out research using many criteria for evaluation but rather (as mentioned previously) a need for succinct and long standing principles of good tax as a starting point for this research.

Adam Smith's Principles: a frequently used framework for evaluation that is commonly used to describe excellent tax policy was founded by Adam Smith (1776) who authored *The Wealth of Nations* in which arose Smith's 'canons of taxations' (also known as 'Principles of Good Taxation'). These canons included, equity, convenience, certainty, and economy. While these principles may be criticized for being out-dated, they are still very relevant as drawing

on these principles for evaluation purposes for this project offers a "catch-all" foundation as well as offering a manageable scope. This is because they are universal standards that have been applied to research many times over. These principles present the fundamentals of every effective tax system. This makes a great starting point for initiating research on New Zealand's past and current R&D incentives. Moreover, Smith's canons of tax are widely used these days by policy advisors across the political spectrum. Given that R&D is a political issue, this provides even more reason to assume Smith's principles for evaluation purposes of this research.

4.6 Adam Smith's Principles

Adam Smith presented four principles of a model tax (also known as Canons of Good Taxation) in his book 'An Inquiry into the Wealth of Nations' published in 1776. The principles are equity, certainty, convenience and economy. According to Smith's framework (Smith, 1950) these principles are paramount to the construction of tax policy, as it is merely when upholding these principles that effective taxes are applied in a manner that fulfils the stated purposes of a tax or a tax system. The principles are briefly explained in sections 4.6.1-4.6.4 below.

4.6.1 Equity

> "*The subjects of every state ought to contribute towards the support of the Government, as nearly as possible … in proportion to the revenue which they respectively enjoy under the protection of the state"* (Smith, 1950, p.347)

Smith's framework (1776) dictates that the first of the four maxims is largely based on equity and fairness as it deals with the distribution of tax burdens. This concept is built on the premise that tax contributions by taxpayers should be levied proportionally depending upon

the revenue they earn under the protection of the state. The principle of equity is based on the division of horizontal and vertical equity. Horizontal equity means that those earning the same amount of income under the protection of the state should pay the same amount of tax, while vertical equity means that persons with the greater ability to pay should bear more of the overall tax burden (Greenheld, Hopper, Ritchie & Somerfield, 1998). Research undertaken in relation to governing tax principles in designing tax systems (Alley & Bentley, 2005, p.586-588) finds that equity and fairness feature in at least eleven frameworks (For example: Smith, 1776; AICPA, 2001; James & Noble, 1997; ICAEW Tax Faculty, 1999; OECD (Ottawa), 1998; Jackson, 1994; Ridge & Smith, 1991; O'Brien Report, 1982; Carter Report, 1966; Asprey Report, 1975). This principle will account for 25 per cent of the overall effectiveness of the incentives under examination.

4.6.2 Certainty

> *"The tax which each individual is bound to pay ought to be certain, and not arbitrary. The time of payment, the manner of payment, the quantity to be paid, ought all to be clear and plain to the contributor, and to every other person. Where it is otherwise, every person subject to the tax is put more or less in the power of the tax-gatherer, who can either aggravate the tax upon any obnoxious contributor, or extort, by the terror of such aggravation, some present or perquisite to himself"* (Smith, 1950, p.347)

The second maxim is that taxes should be certain. Smith (1776) states that the tax which the taxpayer ought to pay must be certain and not arbitrary. This means that the taxpayer must be in a position to know full well the amount of tax to pay, at which time, and the manner of payment to the Government. This principle will account for 25 per cent of the overall effectiveness of the incentives under examination.

4.6.3 Convenience

> *"Every tax ought to be levied at the time, or in the manner, in which it is most likely to be convenient for the contributor to pay it"* (Smith, 1950, p.347)

The third maxim identified by Adam Smith is the maxim of convenience. This principle attempts to align the timing of tax payment to the most convenient time for the contributor to pay it. This would not only ensure that the taxpayer can comply with the tax but it also ensures that the tax collector can acquire the tax payment on time. This principle will account for 25 per cent of the overall effectiveness of the incentives under examination.

4.6.4 Economy

> *"Every tax ought to be so contrived as both to take out and keep out of the pockets of the people as little as possible, over and above what it brings into the public treasury of the state."* (Smith, 1950, p.348)

Finally, the fourth and final maxim is that tax administration should be economical. According to Smith, taxes should be levied with the lowest possible waste, or a process that modern economists would call "limiting deadweight loss". Smith has an extensive description of waste, comprising not only administration costs, but also emotional or fiscally draining costs to the taxpayer or productivity costs meaning foregone growth opportunity. This principle will account for 25 per cent of the overall effectiveness of the incentives under examination.

4.7 Research Methods

The researcher addressed the questions proposed for this study using the following research methods.

4.7.1 Case Study

Yin (2009) describes a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context" (p.13). This project gathered data about the effectiveness of past and current R&D incentives by conducting a case study of the New Zealand situation. Cooper & Schindler (2003) describe a case study as an approach involving a "full textual analysis" (p.150). Furthermore, the researcher recognises that the New Zealand environment and events transpiring around R&D incentives are distinct and possibly exclusive to New Zealand. Thus, a case study of New Zealand's R&D incentive situation was deemed beneficial. Treating New Zealand as a case study subject acknowledges that the New Zealand national R&D incentive experience is unique to what transpires internationally. A limitation of this method is then the lack of ability to generalise the findings or replicability (Bryman & Bell, 2015, p.69). These issues are mitigated somewhat by the researcher undertaking the post-positivism approach that takes in concrete reality but also allows for "how" and "why" questions to be asked in an attempt to understand the actual and complex "reality" which surrounds the relationships being studied (McKerchar, 2010).

4.7.2 Documentary Analysis

In this exploratory study, which cross-compares the past and current New Zealand R&D incentives a literature review will be conducted to inject coherence into the body of research concerning the incentives (or lack thereof). This process ensued by the creation of a table that summarises the main criteria and qualities of each incentive. This table is created from a process of documentary analysis. Key information emerging from the previous literature review (e.g. eligibility criteria, amount of incentive available, etc.) is used in synthesising the summary table.

Following this, critical observations and comments from the above two steps and employing the understandings in a second table which benchmarks the researcher's understanding of the individual R&D incentives' qualities against Adam Smith's Principles of Good Taxation. The second table in the discussion section (chapter 4) visually displays where each incentive stands individually as well as corporately when cross-comparison takes place among the incentives. Data collection is from both primary and secondary sources. The use of documentary analysis is used as a primary source. Documentary data used for this research included Inland Revenue budget forecasts, Statistics New Zealand surveys, and individual bill submissions to the Taxation (Annual Rates for 2015–16, Research and Development, and Remedial Matters) Bill. It is important to mention that the researcher acknowledges that these different types and sources of data come with differing levels of rigour and reliability and should be used accordingly. The researcher also identifies the limitations of using archival data. For instance, it was created for a specific audience, at a specific time, and for a specific purpose. While this does not altogether deter from using the data it does limit the scope of the documents' usability. Identifying these conditions means that the analysis is not misleading. There is a significant need for critical and interpretative thinking with such evidence (Yin, 2009). Qualitative document analysis was in place using interpretive analysis starting inductively.

4.7.3 Preliminary Interviews

Interviewing was a supplementary method. The aims of this study concern research of an exploratory nature. However, exploratory research ordinarily means that the investigation is in the introductory stage, so there may be complications in finding data. This observation was confirmed in a number of instances. Initially the researcher had set out to conduct roughly five interviews with R&D tax practitioners nationally in New Zealand. However, due to the

R&D Tax Credit repeal there were difficulties finding practitioners as most would have moved overseas or no longer were in an R&D role and could provide limited assistance. Two semi-structured interviews with R&D practitioners took place, one with a senior level R&D tax practitioner working in a Big 4 firm and another with an R&D manager working in the chemical engineering sector. The semi-interviews held were not carried out as primary data for the project but rather as a preliminary attempt for the researcher to understand the situations that transpired regarding R&D Tax Credit's removal.

The interviews conducted in this project have had full ethics clearance by the Human Ethics Committee of the University of Canterbury. These are included in Appendix A, alongside the Information Sheet and Consent Form in Appendices B, and C, respectively.

4.8 Summary and Conclusions

Quantitative research in R&D incentives is somewhat over-practiced in the research world. Qualitative R&D incentive research is therefore considered appropriate for use on this research as the underlying social and political aspects to R&D meant that there was a need for a framework that would understand and unravel complex truths about R&D incentives. This chapter described my research development, design and the overall approach this study uses to address the research questions. The data analysis will be conducted through the lens of a critical realist using critical realism.

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter presents the documentary analysis findings of this research. The main purpose of the documentary analysis was to review New Zealand's past and current R&D incentives and make tentative conclusions as to which incentive(s) among these is/are likely to be the most effective for use in New Zealand. For simplification purposes and due to scope limitations, this thesis assumed that increased R&D spending is positive and that the Government should support businesses to increase their R&D spending by providing incentives that help businesses mitigate the risks of conducting R&D. The resultant effect from embracing the above-mentioned assumptions led the researcher on a narrower research endeavour.

This project aimed to draw tentative conclusions as to which R&D incentive(s) among New Zealand's past and current R&D incentive systems is/are likely to be the most effective in terms of being the most equitable, convenient, certain, and economical - that is, the R&D incentive(s) most reflective of Adam Smith's (1776) Principles of Good Taxation (Smith, 1950). Overall, this project tentatively explored which R&D incentive(s) should the New Zealand Government provide.

To gain some context for assessing which R&D incentive may be the most effective among the past and current R&D incentives in New Zealand, an initial understanding of the main elements concerning each individual R&D option was required. The researcher tabulated an information synthesis summary under section 5.3 containing a summarised visual depiction of the three incentives in a single snapshot. The aim of this summary was to provide an understanding regarding the basic elements concerning each R&D incentive. Table 5.1 provides a layout that facilitates for cross-comparison of the incentives by the reader. A pre-discussion will occur before the appearance of the table, which elaborates the elements

pertaining to each R&D incentive by discussing further information involving the current and past R&D incentives. This discussion will explore aspects leading to the creation of each incentive.

Section 5.2 of the chapter and its subsections aim to establish a clearer understanding of each incentive both individually as a standalone incentive and corporately by visually pinning the incentives side by side, allowing the reader to identify similarities and difference at first glance. This step is to familiarise the reader with the context and technical aspects surrounding each incentive. This allows for exploration of each incentive's merits and shortfalls independently. This answers the first question that this thesis examines, being:

RQ1: Why did each incentive come into being? (Policy intentions)

As mentioned earlier (Chapter 1 to Chapter 4), the main goal of this research is to evaluate which New Zealand R&D incentive is likely the most effective in terms of four main overarching principles. This involves conducting an exploratory approach that uses Adam Smith's (1776) Principles of Good Taxation as the standard for comparison across the three incentives at hand. This step involves a qualitative documentary analysis, conducting a case study of the New Zealand situation R&D situation where each R&D incentive is evaluated under the four canons of good taxation as put forth by Adam Smith. This step answers the second question put forth in this thesis, being:

RQ2: How does each incentive fare when benchmarked against Adam Smith's Principles of Good Taxation?

The research answers this question by a combination of ways including employing the understandings gained of the R&D incentives from the first table (Table 5.1) and taking into consideration the findings from the documentary analysis performed pertaining to each

incentive. A second table is created below (Table 5.2) which benchmarks the findings against Adam Smith's (1776) Principles of Good Taxation. The second table visually depicts where each incentive stands individually as well as when cross-comparison takes place among the incentives.

In order to make some tentative conclusions as to which R&D incentive(s) is/are likely the most effective in terms of Adam Smith's four main overarching taxation principles, the researcher uses a rudimentary scaling system that allocates one of the three symbols (**+** = Positive, **±** = No Effect, and **−** = Negative) to each statement which parallels the corresponding evaluative principle. See the illustrative application below in Example 1:

Example 1

If the findings for 'Incentive A' state that its administrative procedures are particularly onerous - An *economy* issue under Adam Smith's Principles of Good Taxation, at that point in Table 5.2 the finding indicating the nature of the onerous administrative procedures written for 'Incentive A' that corresponds with the economy principle is allocated a symbol of '–' indicating this is a Negative.

An evaluation matrix summary (Table 5.3) aggregates all the symbols for each incentive with the respective evaluative proposed principles in place. The weights allocated to each principle are equal at 25 per cent each totalling 100 per cent overall as there is no explicit mention by Adam Smith as to principles that are higher in importance. The R&D incentive which is the closest in meeting the standards expressed by Adam Smith's four principles will be, for the purposes of this research, considered the one likely to be most effective for use. Therefore, after the above takes place, the researcher then draws tentative conclusions under section 5.5 as to the third question put forth in this thesis being:

RQ3: Which incentive(s) is/are likely most effective (using Adam Smith's Principles as the evaluative framework)?

The data used to conduct the above comparison consisted of varied official documents pertaining to each incentive. In the case of the R&D Cash Out of losses incentive, submissions from nation-wide submitters to the tax bill concerning this incentive (Annual Rates for 2015-2016, Research and Development, and Remedial Matters Bill) were used. These submissions were considered for documentary analysis as the submissions contain in-depth scrutiny of practical as well as technical implications of legislating the R&D Cash Out of losses incentive. It is acknowledged that submissions to the bill from different bodies and businesses came with different levels of rigour and even perhaps brought forth certain biases and agency issues, hence, Agency Theory as well as Institutional Theory was utilised to decode the underlying meanings behind the submissions.

To the researcher's knowledge, there is no existing academic study on New Zealand R&D Grants specifically. This provides a contribution opportunity as this research could pave the way for such research to commence. The body of documents used to benchmark this incentive against Adam Smith's (1776) Principles were information derived from the Callaghan Innovation (CI) website.[5] The CI website currently has the widest amount of guidelines and other criteria on the subject of R&D Grants. The information available on the website, which discusses each grant, was benchmarked in a way comparable to the other two incentives. For example, a consideration in regard to R&D Grants eligibility criteria being equitable has occurred in a way comparable to the R&D Cash Out of losses eligibility criteria and the R&D Tax Credit's.

[5] See http://www.callaghaninnovation.govt.nz/

In the case of the R&D Tax Credit, in an effort to utilise previous research on the incentive and to facilitate integration of prior work alongside this research, interviewee comments from nine interviews conducted by Robinson (2009) were used – this way, an integration of previous research assisted the findings of this research. Regulatory Impact Statements from the repeal of the credit have also been used as these illustrate the concerns that had surfaced leading to the removal of the credit. These concerns were handled similarly, to how the R&D Cash Out of losses submission issues have been used.

5.2 R&D Incentives Information Synthesis Summary

In this research, to gain some context, the aim is to initially compare and contrast each of the past & Current R&D Incentives in a New Zealand context. This section has aimed to capture crucial information surrounding the situations that transpired to create each of the incentives at different points in time. The very design of the incentives was also briefly discussed and the policy rationales briefly examined in order to attempt to understand the New Zealand Government's thought process behind the R&D incentives.

In the next section, this research will tentatively assess, in a qualitative capacity, which R&D incentive is likely the most effective in New Zealand. This was attempted by examining submissions to the recent R&D bill and giving somewhat of a rudimentary scale to the issues in a relative ranking discussed under section 5.1 above. It is important to note that the researcher's stance in this thesis is that the Government should be supporting R&D and that increasing R&D is considered positive.

Therefore, section 5.2 of the chapter aims to establish a clearer understanding of each incentive both individually as standalone R&D incentives and also corporately by visually pinning the incentives side by side, allowing the reader to identify similarities and differences at first glance. This step is to familiarise the reader with the context and technical aspects of

each incentive allowing for exploration of each incentive's merits and shortfalls independently. This answers the first question that the thesis examines, RQ1: "Why did each incentive come into being? (Policy intentions)"

An R&D incentive information synthesis summary table is included under section 5.3 with the researcher's elaborations detailed beforehand. Sections 5.2.1 – 5.2.6 will discuss the incentives in the order in which they have been in use in New Zealand. Matters such as target claimants, policy rationales, eligibility and other such criteria are discussed. Starting with R&D Tax Credit (Sections 5.2.1-5.2.2) which was introduced with effect during the 2008-2009 income year, followed by the R&D Grants (Sections 5.2.3-5.2.4) – with Callaghan Innovation Act enacted in 2012 to administer the new R&D Grants established (Callaghan Innovation Act, 2012). The Grants are currently in use. Lastly, sections 5.2.5-5.2.6 will discuss the most recent R&D incentive, the R&D Cash Out incentive, which was enacted in the Taxation (Annual Rates for 2015-2016, Research and Development, and Remedial Matters) Act 2016 and is on-going at this stage.

5.2.1 R&D Tax Credit

5.2.1.1 General Overview

The R&D Tax Credit allowed firms to have a deduction for R&D expenditure from their corporate tax liabilities. A comprehensive study by Köhler et. al (2012), which recounts many R&D incentive studies, describes the impact and effectiveness of several different incentives for R&D. The study finds that with respect to design features of R&D tax incentives, "volume-based incentives and tax credits tend to produce higher additionality, as holds for more generous schemes" (Köhler et. al, 2012, p.3).

The study also recounts a recent longitudinal study in the Netherlands on the welfare effects of a volume-based R&D Tax Credit programme. The results of which suggests that: input additionality weakens over time, and that increased government spending on R&D causes an equivalent fall in private sector R&D spending. This can only be avoided for small firms while for large firms the scheme turned out to be ineffective.

This finding would suggest differentiating R&D tax incentives by firm size or the volume of R&D expenditure, for example, through introducing caps or applying different rates for small and larger firms. In addition, a tax incentive could be lowered for firms that have used the credit for some time (Köhler et. al, 2012, p.4); this measure could alleviate the effect of the crowding out of private R&D spending. The study summarises that the scope of a fiscal incentive really lies in its implementation and hence perhaps the same lies for a New Zealand R&D Tax Credit.

In conclusion, while there are some variations, the majority of research seems to pinpoint that, if implemented in the appropriate manner R&D Tax Credits are a highly effective R&D incentive. Research shows that while somewhat difficult to forecast for, R&D Tax Credits offer no discrimination to all national firms alike, offering a high degree of involvement from firms in each particular country. In terms of this project, which particularly reviews the level of equity among three other principles (as in section 5.5) of the incentives, the finding that most previous studies conclude in terms of the R&D Tax Credits offering no discrimination is indicative that the R&D Tax Credits are equitable.

5.2.1.2 Policy Rationale

The decision to introduce the past New Zealand R&D Tax Credit incentive was led by a discussion document conducting a New Zealand based business tax review released in July

2006 (Cullen & Dunne, 2006). The discussion document had involved several months' work in considering possibilities which could reform the New Zealand tax system.

Targeted tax credits were among the possible options suggested in this document for the reason that, in relation to R&D, this would parallel the level of New Zealand's R&D spending with its OECD co-members (Cullen & Dunne, 2006, Para 310, p.15). Therefore, there was acknowledgement that New Zealand's R&D spending was noticeably substandard when compared with other members of the OECD. Thus the main publicly recognized justification for the summoning of the tax concessions was to correct the market failure of underinvestment in R&D by New Zealand firms.

The main theoretical framework used in this thesis, political institutionalism, assists in examining the introduction of the R&D Tax Credit and how this decision may be influenced by political and social institutions in New Zealand. In adopting the above-mentioned framework, there is a wish to 'clarify' the situation in New Zealand to highlight the motivations of institutional variables in generating the R&D Tax Credit incentive policy. As mentioned in chapter 4, institutional theory is concerned with political and social institutions which contribute greatly to shaping political "actors" in terms of the way these political actors then define their interest and exert their influence on other groups (Thelen and Steinmo, 1992, p.2). This theoretical framework can help unravel the underlying factors that form a motivation for a Government to rationalise a policy choice such as the R&D Tax Credit.

For the purposes of this research, the New Zealand Government can be thought of as a political institution and taxpayers as a social institution. The Government body which had

welcomed the enactment of the R&D Tax Credit was the Labour Party. [6] As New Zealand General Elections were underway in 2008, the interplay between the above-mentioned institutions could be that the Labour-led Government authorised the enactment of the R&D Tax Credit, which was accessible across many New Zealand SME firms, in order to seem as a government that supports business. The main theoretical framework is further supplemented in this research by agency theory, which would suggest that the Labour Party serve citizens to their own best interests. The Labour Party would wish to appear as an entity supporting business, as this may consequently persuade voters that benefit from the tax concession to cast their votes in favour of the Labour Party for the 2008 General Election.

Further justification for the creation of the concessions is to reduce the level of complicated administrative procedures involved with such measures as delivering this R&D Tax Credit assistance through the tax system is seen as the most efficient mechanism for the Government to provide support (Cullen & Dunne, 2006, Para. 3.8, p.15). This justification was inferring that discretionary support for R&D was already in place via R&D grant programmes.

The R&D Tax Credit applied from the 2008/09 income year and was designed to encourage private sector business R&D spending in New Zealand. The incentive was created to make the activity more appealing by providing subsidy in the form of tax credits to firms who undertake eligible R&D activities. This incentive is created to generate additional R&D hence increasing productivity in the economy; this leads to creating more innovative workplaces and a highly skilled workforce.

Thus the policy rationale behind the creation of the past R&D Tax Credit can be summarised in the following (note that these may inter-relate):

[6] The Labour Party was voted in the 48th Term in the 2005 General Elections. The National Party was voted in the 49th Term in the 2008 General elections. For further see below official results:
http://2005.electionresults.govt.nz/electionresults_2005/partystatus.html
http://www.elections.org.nz/events/past-events-0/2008-general-election/results-2008-general-election

- To level New Zealand's R&D spending with its fellow OECD members
- To correct underinvestment in R&D by generating additional R&D
- To encourage private sector investment in R&D
- To boost productivity/innovation and therefore international competitiveness
- To provide a measure which does not involve onerous bureaucratic procedures

5.2.1.3 Targeted Claimant

The targeted businesses include those which undertake a minimum of $20,000 of eligible R&D expenditure (explained below) per year that the claim is made. Perhaps the reason behind the minimum threshold amount is established to bring to a minimum compliance and administrative costs which would coincide with the economy principle which dictates that Government incentives should be levied with the smallest possible waste including in this case, administration and compliance costs to the taxpayer and the state.

Virtually all businesses are eligible to claim the R&D Tax Credit regardless of their legal structure if the R&D is performed mainly in New Zealand as additional investment in R&D by New Zealand companies has broader benefits for the New Zealand economy (Inland Revenue, 2007). Access to the tax concessions by public sector entities was disallowed possibly as such entities could access more effective instruments for increasing their R&D spending including internal funding, special government grants and investor funding. This treatment coincides with the equity principle on the level that there was an attempt to make the R&D incentive options impartial and applicable to smaller R&D firms with less significant R&D projects that may have not been eligible for a R&D grant.

The excluded entities include Crown Research Institutes, tertiary institutions and District Health Boards. Access to the R&D tax concession was extended to entities controlled by the

excluded entities. This is most likely to avoid the main excluded entities entering into false restructuring and tax planning arrangements to be artificially eligible for the tax concessions, which is perhaps a measure to uphold the integrity (by minimising anticipated fraud) as well as equity of the tax concessions as per the explanation above.

Furthermore, the claimant must also "control" the R&D and bear the financial risk pertaining to the R&D undertaken. This is to ensure that the tax concession goes towards the party which undertakes the R&D investment and to thwart numerous claims for the same expenditure (Inland Revenue, 2007, p.6). Again, this is a combination of equity & integrity upholding measures as they are in place to ensure a fair treatment and limit the opportunity to commit fraud.

5.2.1.4 Rate of R&D Allowance, Eligible Expenditure, and Administrative Procedure

The R&D Tax Credit incentive is essentially an entitlement regime, meaning that had the claimant met the eligibility criteria, they can consequently access the Tax Credit – rather than, say discretionary government assistance such as an R&D grant which is more focused on testing the *merit* of the project being done and deciding if it is a profitable project. The tax system provided the credit at the rate of 15 per cent of eligible R&D expenditure in a year. The claimant must file a supporting document in addition to requesting the R&D tax concession in the annual income tax return filed for the company, counterweighing the tax liability of the claimant.

Excess tax credits result in a refund, however, if a business had encountered a tax loss for the year (or only had tax-exempt income), the business may receive the credits they are due in cash. The credit will reduce residual income tax, which will reduce provisional tax liability, allowing businesses that pay provisional tax to receive the benefit of the credit closer to the time they incur R&D expenditure. This technical treatment would coincide with the

upholding of the convenience principle of Good Taxation. This is as the above-mentioned technical treatment brought by the implementation of the Tax Credit would allow taxpayers a timing advantage and therefore have positive convenience implications.

Section LH 7 of the ITA 2007 defined eligible R&D activities. The section namely advised that the R&D activities must be systematic, investigative and experimental undertakings that either pursue the advancement of science or technology by the resolution of scientific or technological uncertainty, or that comprise a considerable component of innovation.

Eligible expenditure is explicitly mentioned includes (Inland Revenue, 2007): "employee salaries and training, depreciation of tangible assets used primarily in conducting R&D, overhead costs, consumables, and payments to entities conducting R&D on behalf of the claimant" (Inland Revenue, 2007, p.22-23). Likewise, ineligible expenditure is explicitly mentioned and includes: "Interest, the loss on sale or write-off of depreciable property, the cost of acquiring core technology (technology used as a basis for further R&D), expenditure funded from a government grant or the required co-funding, expenditure on intangible assets and professional fees in determining eligibility" (Inland Revenue, 2007, p.22). Moreover, undertakings which support Systematic, Investigative and Experimental Activities (S.I.E.), but that are not S.I.E.in themselves, are eligible if they are entirely or mostly for the purpose of the S.I.E. activities and are necessary for, and vital to, them.

Therefore, for a business that claims the R&D Tax Credit, the anticipated impact is that the business can expect their marginal costs of R&D spending to reduce and therefore may be able perform further R&D as the financial risk of performing R&D reduces through use of the R&D Tax Credit incentive. Furthermore, there are likely to be spillover benefits to New Zealand when companies invest in R&D.

5.2.2 Adam Smith Principles Evaluation – Past R&D Tax Credit

5.2.2.1 Equity

As mentioned previously, Crown Research Institutes, tertiary institutions and District Health Boards, their associates and entities controlled by them were ineligible for the credit. These entities were excluded because the credits were intended to encourage private sector investment in R&D, and there are more effective mechanisms for increasing the amount of R&D carried out by these institutions. Therefore, in terms of business eligibility, the researcher believes that there are mechanisms put in place, which deal with the fair distribution of tax benefits in the case of the R&D Tax Credit. This is as theoretically with the creation of the R&D Tax Credit, the distribution of tax benefits is broadly across the majority of firms in New Zealand, and that more importantly; firms at the same economic position can have access to the same level of benefit. Thus, these implications allude to the upholding of the equity principle in terms of the drafting of the R&D Tax Credit.

In summary, R&D Tax Credits in theory offered no discrimination to all national firms alike. As the past R&D Tax Credit came into being a time when general discretionary R&D Grants were in place, the emphasis behind the creation of the R&D Tax Credits was to bring about an option for taxpayers performing R&D that applies a broad-brush approach that does not favour one company over another. This would in turn increase the level of equity that transpired among the R&D incentives on offer for taxpayers at the time being. The researcher concludes that according to the above elements in terms of eligibility to the Tax Credit, and the spirit and meaning of equity according to Adam Smith the standard of equity is likely met with regard to the R&D Tax Credit.

5.2.2.2 Certainty

As eligibility to the R&D Tax Credit is limited by a minimum threshold amount of $20,000 of eligible R&D expenditure per year that the claim is made, this makes the Credit a volume-based (total amount of R&D) as opposed to an incrementally based (additional R&D done above a base-year level) incentive. The justification for this according to a Tax Reform Package Government release (The Beehive, 2007) is that the volume method is easier to grasp and put into application (The Beehive, 2007, p.6). The construction of this measure aligns with the principle of certainty. That is, the taxpayer or business would then have to approach a simpler method to working out their eligibility. This will endow firms with more certainty about the possible benefit of the R&D Tax Credit when forecasting their R&D investment over the longer term.

Moreover, in the stages of planning the R&D Tax Credit, a discussion document was released (Cullen & Dunne, 2006) which suggests an expert body to review and determine eligible expenditure. Had this approach proceeded, it would mean that a firm could look to seek the pre-approval from the expert body to increase certainty that the expenditure was eligible. In a special report released to potential claimants to aid in understanding of the R&D Tax Credit, the claimant was advised that they could apply to the Commissioner to determine whether an activity is R&D, eligibility for the credit and whether certain expenditure is eligible for the Credit (Cullen & Dunne, 2006, p.4). This tool, which is available for taxpayers, can also increase their certainty in terms of eligibility to the Tax Credit.

Moreover, the discussion document mentioned above (Cullen & Dunne, 2006) also stated that the definition of "eligible expenditure" had to be clear and had to deliver an objective definition of the relevant expenditure (Cullen & Dunne, 2006, Para 3.12, p.15). As mentioned in the historical overview earlier in this thesis (section 3.3), the findings for research

undertaken to uncover insights on good policy design (Sawyer, 2005) included the use of the OECD's Frascati definition for R&D. The R&D Tax Credit utilised a definition describing R&D activities as "systematic, investigative and experimental activities" (Section LH 7 (2) ITA 2007). This definition is similar to the definition recommended by the OECD in that it alludes to activities which acquire new knowledge, creating new or improved products or similar. As the definition selected reflects one confirmed as effective by an established line of academic research, the researcher deems that the decision to choose a clearer definition is likely key for the workability of a Tax Credit incentive and one that can consequently increase certainty for a taxpayer undertaking R&D.

5.2.2.3 Convenience

As mentioned previously, the tax system administered process of obtaining the past R&D Tax Credit, meant that a claimant was to request the R&D Tax Credit in the annual income tax return filed for the company, offsetting the tax liability of the claimant. The credit would reduce residual income tax, reducing provisional tax liability, and allowing firms that pay provisional tax to receive the benefit of the credit closer to the time they incur R&D expenditure. This technical treatment would coincide with the upholding of convenience. The researcher considers that the technical treatment brought by the implementation of the Tax Credit would allow taxpayers a timing advantage and therefore likely have positive convenience implications.

5.2.2.4 Economy

There are two levels in which the economy principle is to be considered; the state level and the taxpayer level. Again, perhaps the reason behind the minimum threshold amount is established to bring to a minimum compliance and administrative costs which would coincide with the economy in operation principle which dictates that Government incentives should be

levied with the smallest possible waste. However, due to the R&D Tax Credit being available to be claimed by any R&D practicing firm which is eligible for the Credit, this would mean that it is not possible to budget reliably for such support as this will depend to a greater extent on the comprehensive design and scope of eligible expenditure. This uncertainty has caused financial sustainability issues for the state and formed one of the reasons to repeal the Credit.

In terms of the taxpayer plane, practitioners described the administrative and compliance requirements as "onerous" (Robinson, 2009, p.16). In particular, the Inland Revenue released a Research and Development Tax Information Bulletin (2008) which required a "detailed supporting statement". Robinson's findings (Robinson, 2009) state that the biggest undertaking between the enactment of the Tax Credit and its repeal was businesses setting up or upgrading systems to be able to capture their expenditure and be eligible for the Credit. While the number of interviews conducted limited Robinson's findings, the nine practitioners interviewed collectively have advised close to 100 firms in total. For the purposes of this research, the opinions held by the practitioners while limited by personal biases are considered to represent the context that transpired during the time.

This occurrence of upgrading and creating systems took place perhaps due to SMEs in New Zealand previously having no reason for capturing their R&D spending in detail, however, due to the enactment of the R&D Tax Credit, there was motivation for this action to occur. Hence, the cost involved in the process of setting up systems (albeit sunk costs) was a large cost for many taxpayers.

Onerous costs regarding the R&D Tax Credit included compliance and administration costs, sustainability issues, and budgeting constraints. While taxpayers were burdened with such onerous costs, the extent of these costs being directly attributable to the enactment of the R&D Tax Credit is debatable. As previously mentioned under this section, a justification for

the high compliance costs in the first year of the R&D Tax Credit is likely due to upgrading and creating of systems for R&D spending record keeping (Robinson, 2009, p.25). Hence, the cost involved in the process of setting up systems was a large cost for many taxpayers during this time and would have needed to take place regardless of the type of R&D incentive at hand. Moreover, due to the limited amount of time that this R&D incentive was utilised for, the economic implications cannot be sufficiently studied. For these reasons, the researcher considers the economy in operation principle to be neither upheld nor abandoned within the past R&D Tax Credit which results in a No-Effect outcome (Neither negative nor positive).

5.2.3 R&D Grants

5.2.3.1 General Overview

R&D Grants are not looked on favourably by practitioners as they are seen as a minimum level of government investment (Robinson, 2009, p.37) due to the Grants being given to "back winners" by the Government selecting projects which have a high probability of producing profit. According to Robinson (2009), this seems to be an "exclusive" system of funding (Robinson, 2009, p.38). In addition, European-based studies have unveiled that Grants are not groundbreaking in effect because of their "targeted nature" (Sawyer, 2005, p.135).

One recent study (Jaffe & Le, 2015) investigates the impact on innovation output of government assistance in terms of R&D Grants within a New Zealand context. The authors found that receiving an R&D grant considerably increases the likelihood that a firm in the manufacturing and service sectors applies for a patent throughout 2005–2009, but finds no positive impact on the possibility of applying for a trademark. This study is limited to firms that participated in the Business Operation Survey. The study also finds that receiving a grant nearly doubles the probability that a firm introduces new goods and services to the market.

However, its effects on process innovation and any product innovation are comparatively much weaker. This study also finds that there is little evidence that effect of grant receipt has differences between small to medium firms.

These findings contrast with a previous study (Ministry of Economic Development, 2011) which examined whether the R&D grant programme increased receiving firms' sales, employment and productivity. The MoED study found an emergence of impact for Grants similar to the Getting Started Grants that are capability-building, but no evidence of impact for R&D Project Grants; and the positive impact was limited to small firms without any evidence of impact for larger firms. The Jaffe & Le (2015, p.25-26) study proposes a few suggestions as to why the difference in conclusions occurred. A summary of these suggestions is below:

1. The small sample size meant that the effect of the Project Grants on innovation could not be detected as innovation measures improved economic performance on average.
2. The lag between innovation and improved performance is so long that this effect cannot be detected in the authors' study. The Ministry of Economic Development study, on the other hand, monitors performance effects up to four years after firms first receive assistance.
3. Market failure causing firms to under-invest in R&D due to risk of imitations. Imitations may follow innovation in a discouraging way where the returns to original innovators are not significantly higher than to imitators.
4. The innovation measures the authors have used are poor proxies for real innovation. This again may mean that the link cannot be detected.
5. Innovation is not a sufficiently vital cause of economic performance to make an increase in innovation due to a Project Grants appear in economic performance relative to that of firms that had not received a grant.

6. Project Grants have no effect on true innovation, but employees of firms that have received Grants consciously or unconsciously prompt an internal belief that they are innovating.

Critically speaking, perhaps the sum total of the findings from previous academic research seem to suggest that R&D Grants are somewhat passive in nature as they do not necessarily gear more firms to increase their R&D spending. They rather work as a reward.

5.2.3.2 Policy Rationale

The National Party brought forth the Callaghan Innovation-administered R&D Grants which offer discretionary governmental assistance, who at the same time chose to repeal the R&D Tax Credits. As mentioned previously practitioners see R&D Grants as a minimal level of government investment due to their selectivity in choosing "winners" by distributing the largest amount of R&D support to companies that already perform well. Political institutionalism can guide in examining the Government's motivation in introducing the new R&D Grants and driving the removal of R&D Tax Credits, as R&D in itself is largely political. The theoretical framework chosen for the research could explain the motives for the introduction of the R&D Grants and the removal of the R&D Tax Credit despite its promise due to a change of government.

Placing the New Zealand Government as the central and most powerful institution, perhaps it is in the Government's best interests to appear as a financially responsible body by first, removing the R&D Tax Credit based on high fiscal running cost. Secondly, by lifting the R&D outputs through allocating most of the funds available for R&D support to high achieving companies and therefore placing "safe bets". As mentioned in Chapter 4 above, agency theory describes a relationship in which the principal delegates work to an agent (Eisenhardt, 1989). In the case of the R&D Callaghan Grants, the Government (the principal)

delegates work to be administered by Callaghan (the agent), who then performs that work to their best interest. Agency theory would suggest that Callaghan Innovation, by selecting the winners in the economy, essentially bring further financial gains, which would in turn make Callaghan appear as performing well, gain more support from the Government, and hence more power.

This paradigm is exemplified by research undertaken by political institutionalism scholar Steinmo (Steinmo, 1993, p.10) who relays that Government and the structure of political institutions are key influences in taxation policy change. This perhaps brings forth that such policy decisions reflect political agendas and notwithstanding economic reasoning, hence, the removal of the R&D Tax Credit despite its promise for bringing higher output additionality established by economic research (Sawyer, 2005, Köhler et. al., 2012).

Unlike the R&D Tax Credit which is accessible to virtually any company which meets the eligibility criteria, the R&D Grants place more emphasis on testing the *merit* of the project being done and deciding if it is a profitable project. Section 13 of the Callaghan Innovation Act 2012 states that Callaghan Innovation's chief objective is to fund science and technology-based innovation and its commercialisation by entities, mainly in the manufacturing sector and services sector, this is to develop their growth and competitiveness.

There are several types of R&D grants available including Growth Grants, Project Grants, Getting Started Grants, and R&D Career Grants, which branch out into Student Grants. New Zealand's current performance in relation to R&D spending as a percentage of GDP ranks 29th out of 35 OECD countries. The Government's rationale to call upon the Callaghan Innovation administered R&D Grants was the challenge to grow private sector investment in R&D. Growing private sector investment in R&D remains to be an area where New Zealand continues to lag behind as evident by the ranking above.

5.2.3.3 Targeted Claimant

This R&D incentive runs to an opposite direction to the demographic that the R&D Cash Out (discussed in section 5.2.3 below) is targeting. The objective of this R&D incentive is to fund companies that already do well in terms of innovative success and R&D spending.

For any business to elect for an R&D Grant, the business as a starting point must meet the Business Eligibility criteria and be among the entity types that are eligible for the R&D Grant, therefore the business must be one of the following:

- Registered under the Companies Act or the Limited Partnerships Act,
- A Māori incorporation or trust established under the Te Ture Whenua Māori Act,
- A trust set up to manage assets as part of a Treaty of Waitangi settlement,
- A Māori statutory body; OR,
- A business controlled by one or more of these entities.

In addition, other general criteria must be met as per below:

- A business must meet financial and due diligence requirements.
- The claim must be for R&D performed in NZ (unless pre-approved).
- The claimant must have an active R&D programme.
- The claimant must not bring the reputation of CI or the R&D Grants programme into disrepute.
- The claimant must conduct R&D activities as defined in NZ IAS 38.

The above criteria depict a niche demographic that many companies will not be eligible under. The narrow spectrum of which companies can elect for support from this incentive is designed intentionally as to limit selection to highly performing entities that tend to be

incorporated companies rather than, say, small manufacturing firms which may miss out on the R&D Grants.

The first three criteria above do represent standard eligibility requirements however; the final two criteria above including the reputation clause and the R&D accounting definition are specific to the Callaghan Administered R&D Grants. Callaghan Innovation have included the reputation clause as of recently after Callaghan Innovation had public tensions with Trends Publishing and Gameloft (mentioned above in section 3.1). The reputation clause exists to preserve the reputation of Callaghan Innovation and the R&D Grants, indicating that to be eligible a business must not bring either of the two into disrepute.

5.2.3.4 Rate of R&D Allowance, Eligible Expenditure, and Administrative Procedure

The rate of R&D Grant varies by Grant type, as per below:

- Growth Grant: 20 per cent of eligible R&D expenditure up to $5M p/a ($25M over 5 years).
- Getting Started Grant: 40 per cent of eligible R&D expenditure up to $5,000.
- Project Grant: 40 per cent of eligible R&D project costs.
- Career Grant: depending on career-grant type. Range $6,400 – $75,000.

From the above list, it can be observed that the Growth Grant yields the highest amount of funding available for an eligible company. For a company to elect for the Growth Grant it must spend at least $300,000 in the year and have 1.5 per cent of revenue on R&D Intensity (RDI) in each of the last 2 years to the year being claimed or planned to meet this target in the following year. This extra criterion automatically distances any company that may not be able to spend the $300,000 due to a lack of internal funds and be ineligible for the Growth Grants. This is perhaps another indication that the R&D Grants (particularly the more generous grants) are really fashioned to accommodate companies that have a higher level of capital and

with robust R&D programmes already in place. The Ministry of Business Innovation & Employment released a report (2014) which depicted that New Zealand's Small and Small-Medium Enterprises (SME), which include anywhere from zero to 49 employees total up to roughly 460,000 firms while medium and large firms total up to roughly 4,750 firms. Given that Callaghan Innovation allocate Growth R&D Grants to between 15-20 firms a year, this indicates a limited number of successful applicants and perhaps that the allocation is arguably weighted towards medium and large firms which have the internal capital and investor power to be able to meet the RDI criteria.

Therefore, the design of the R&D Grants may mean that many New Zealand firms in the Small-Medium spectrum to miss out on the more generous grants, and given that SMEs make up most of New Zealand's firms (MBIE, 2014), this would indicate that only a select few firms would be able to unlock the more generous R&D grant amounts.

In terms of ineligible expenditure, the Ministerial Direction Guidelines provide a thorough list of general and specific exclusions including items such as "Research in the social sciences, arts or humanities". As for eligible criteria, this includes any R&D expenditure as defined under IAS 38 'Development Phase' Para 57 (clarified under NZ FRS13).

The administrative procedures involve making initial contact with CI to establish eligibility. This is perhaps as the Callaghan Innovation website has an overwhelming body of information to filter through. Therefore, the claimant personally investigating information on specific types of grants as criteria differs per grant type may be a tedious and time-consuming process. This is perhaps the reason why a business is initially advised to make contact with Callaghan.

Then the claimant is advised to read the Grant funding agreement. After these two initial steps take place, the claimant is to file an application for a Grant providing audited financial statements and file an annual progress report or final proposal to CI.

5.2.4 Adam Smith Principles Evaluation – Current R&D Grants

5.2.4.1 Equity

Unlike the R&D Tax Credit business eligibility criteria, which specify that any company performing eligible R&D activities *except* for a select few types of entities can claim the tax concession, the business eligibility criteria for an R&D Grant depict a niche demographic that many companies will not be eligible under. While there are four main types of R&D Grants under the new Callaghan Innovation-administered R&D Grant regime, the grant offering the highest level of R&D support is the R&D Growth Grant offering up to $5 million dollars funding per annum.

Eligibility to the Growth Grant is limited to companies that have spent at least $300,000 per annum and 1.5 per cent of revenue on eligible R&D (RDI) in each of the two years prior to applying for the R&D Growth Grant. As the companies would initially have to allocate a significant amount of capital on R&D expenditure per year to be eligible for this type of grant, this would automatically alienate the likes of start-up companies, small, and small-medium R&D firm which make up the vast majority of the businesses in New Zealand from accessing particularly more generous grants.

The impact of the R&D Grants is larger than, say, receiving an R&D Tax Credit; this is as the amount of R&D assistance given from an R&D Grant tends to be much more generous. In this way, while the R&D Tax Credit is available to many companies offering a smaller rebate, a R&D Grant would be available to a select few companies and offer a larger rebate.

Political institutionalism would suggest that the somewhat narrow spectrum of which companies could elect for support from this incentive and, in particular, the R&D Growth Grant, is designed intentionally as to limit selection to highly performing entities. This action brings about themes of agency implications and may be motivated by the Government (which is assumed under agency theory to represent its citizens to its own best interest) desiring to appear as fiscally responsible and performing well to gain more support by citizens and hence more power.

The principle of equity under Adam Smith's evaluative framework centres on the fair distribution of tax burdens, and that those who have the greater ability to pay should pay more tax – an ideal that the New Zealand tax system upholds in terms of uptaking progressive tax rates. The claimant successful in receiving the Growth Grants in specific would gain a substantial boost towards their R&D. This could mean that there is more flexibility for that company to select projects which are not nearing the commercialisation stage and take on more risky R&D projects as the increase in funding effectively decreases the risk of conducting that project.

If one considers the dynamics of how the R&D Grants are distributed with the more generous grants rewarded to the "winners" in the economy, while the less substantial grants going towards smaller, less successful firms, this challenges the concept of equity. Effectively, larger firms receiving substantial tax benefits (and therefore paying less tax) from the R&D Grant regime are challenging the idea of equity, which states that taxpayers with higher incomes should pay a higher level of tax. As the opposite would occur in the case of R&D Grants, the treatment of the benefit received is rather regressive.

Therefore, due to vertical equity issues as mentioned above, the researcher believes that there are inadequacies that cause an unfair distribution of tax benefits in the case of the R&D

Grants. This is as theoretically with the creation of the R&D Tax Credit, the distribution of governmental benefits is ring-fenced to a select few firms in New Zealand. Thus, these implications allude to the undermining of the equity principle in creating the new R&D Grants.

5.2.4.2 Certainty

Adam Smith's principle of certainty claims that a person's tax obligations should be clear rather than ambiguous. This means that taxpayers should be able to govern their tax liabilities with reasonable certainty based on the nature of their transactions. If the transactions subject to tax are easy to recognise and value, there is more possibility for the principle of certainty to be attained. The same can be said for a taxpayer receiving a rebate from the Government. The taxpayer should also be in a position to be able to determine the amount of assistance they are likely to receive under the R&D Grant regime.

As previously mentioned in the literature review, in examining the feasibility of the R&D rules, and to identify areas of concern, the New Zealand Government decided to take counsel from a private sector R&D Liaison Group. The predominant concern brought forth by the R&D Liaison Group is that there is a sweeping uncertainty regarding the definition of R&D.

International Accounting Standard 38, which provides the definition selected for R&D expenditure under the R&D Grants, is known for bringing forth uncertainty as per the R&D Liaison Group recommendations. The ambiguity brought forth by use of the IAS 38 definition for R&D would likely cause an issue in terms of the workability of a R&D Grant and can consequently increase uncertainty for a taxpayer undertaking R&D.

Furthermore, Callaghan Innovation use Judgement Criteria as explained in Callaghan's 'Ministerial Direction for Business R&D Grants' (Callaghan Innovations, 2015) to decipher

business proposals and determine their eligibility for a grant. For example, the criteria: 'Benefits Outside the Business' which involves asking how much potential is there for benefit to accrue outside the business (Callaghan Innovation, 2015, p.7). The researcher deems the criteria used as elusive and involving a great deal of estimation on Callaghan Innovation's part. This may indicate that taxpayers remain uncertain regarding their eligibility to any grant under the R&D Grants regime. This is especially so since Callaghan Innovation administer the applications separate and distinct from others of the same kind (on a case-by-case basis) by considering each application at a time using somewhat subjective criteria in the process of legitimising claims, this limits ability of the business to predict the outcome of their application and plan ahead.

Considering the above factors, the researcher concludes that the R&D Grants do not uphold the principle of certainty for the taxpayer.

5.2.4.3 Convenience

Different grants come with varying funding and payment timing agreements. In terms of the R&D Growth Grant funding, a business can expect to receive a maximum of $5M per year with ninety per cent of the amount paid up for "satisfactory invoices" and 10% held back as retention at the end of each quarter (Callaghan Innovation, 2015a, p.4-5). As for the Getting Started Grants, an eligible business can receive a one-off payment at the completion of the project (Callaghan Innovation, 2015b). The Project Grant funding agreement (Callaghan Innovation, 2015a, p.5-7) indicates that a claimant would receive the payment in arrears (monthly or quarterly). The R&D Career Grants (Callaghan Innovation, 2016), which involve a claimant brining a student on board for R&D problem solving support, specify that the grant amount be given provided that the student is paid by the business. It seems that in the majority, (except for the Project Grants) the grant amounts are given after the R&D work has

been completed, that is, after the invoices are provided or upon the finishing of the R&D project. This may have unfavourable cash flow implications for some businesses that do not possess the internal capital to conduct the project. For example, the insinuation behind businesses receiving the Getting Started Grant is that these businesses are merely in their infancy and are monetarily challenged in the short-term; receiving the funding upon the completion of the project may cause cash-flow issues for such claimants and hence become a disincentive to invest in R&D.

Moreover, for most of the R&D Grants, the claimant cannot use the funding for any costs incurred before the contact start-date or after the contract end date. This may prove inconvenient for a claimant had there been untimely delays from the long application process for a particular grant involving steps such as providing financial forecasts for the three years ahead. This may lead the claimant to initiate the project prior to the contract start date as otherwise, due to the long process; claimants with projects in the idea phase awaiting a grant may face the risk of having their idea developed by another business. This complication would mean that the amount of R&D expenditure spent on the project before the start date is non-claimable for that business.

Therefore, the researcher considers that the treatment brought by the implementation of the R&D Grants would generally bring a timing disadvantage upon prospective claimants and consequently is likely to have negative convenience implications. The researcher concludes that the R&D Grants do not uphold the principle of convenience for the taxpayer.

5.2.4.4 Economy

A Regulatory Impact Statement was released in relation to the repeal of the past R&D Tax Credits primarily on the basis of high estimated fiscal cost (Treasury, 2008). The estimated fiscal cost of maintaining the R&D Tax Credit was estimated to be $373 million per year

from 2011/2012 (Treasury, 2008, p.9). In terms of the fiscal cost involved with Callaghan Innovation administered R&D Grants, the 2015 Annual Report advises that during the 2014/2015 financial year, approximately 523 businesses had received $165 million funding in aggregate (Callaghan Innovation, 2015, p.6).

Therefore, the fiscal cost of maintaining the Callaghan Innovation administered R&D Grants is approximately one half of what is estimated to be spent on maintaining the R&D Tax Credit. In comparison, the R&D Grants would appear as more fiscally manageable to maintain for the state. Moreover, in terms of administration costs for the state, the outsourcing of the Grant administration process to Callaghan Innovation which holds 400 staff (Callaghan Website, 2015) can surely alleviate the Government's bureaucratic burdens. Thus, the Callaghan Innovation administered R&D Grants, especially when compared to the R&D Tax Credit regime, seem to uphold the principle of economy for the state.

On the taxpayer level, however, the administrative costs are somewhat steep given the extent of research which a claimant must commit to as the Callaghan Innovation website is difficult to navigate through as there is a significant body of documents to filter through.

After this step, the claimant is advised to lodge an initial call to Callaghan Innovation to become acquainted with the basics of the Callaghan Innovation Grant process. Fiscal cost for the claimant is likely to be high as an extensive level of documentation is required to meet the standard of information which Callaghan necessitates in terms of establishing eligibility to a grant. While bigger firms may have the capital to allocate the significant work required for administrative to an external source, for a smaller firm this may mean more time and money invested on meeting the requirements rather than that effort going into expanding and investing. Hence, the extent of the administrative procedure necessary to secure a grant may deter a claimant.

The researcher argues that the R&D Grants are economical for the state, however, not for the claimant. Therefore, the principle of economy is neither upheld nor abandoned which results in a No-Effect result (neither negative nor positive).

5.2.5 R&D Cash Out of Losses

5.2.5.1 General Overview & Policy Rationale

As this incentive has only just become law and been active for one financial year, to the researcher's knowledge, no prior academic research exists on these. The opinions of tax practitioners are utilised in this section since tax practitioners who have dealing with the R&D Cash Outs arguably hold the expert opinion.

This incentive focuses on R&D intensive start-up companies, and intends to lessen their risk of encountering market failures arising from the current tax treatment of losses. Loss-making companies will be able to claim up to 28 per cent of their losses from R&D expenditure in any given year. As the losses come forward, this provides a temporary timing benefit.

This R&D incentive introduced a change facilitating a non-discretionary, broad-brush approach to incentivising R&D: an 'access for all' approach to R&D that is administered in a less targeted approach than the R&D Grants. The previously discussed R&D Grants were only targeted towards a small part of the economy and hence many companies would not have access to any funding at all. This R&D incentive changes this culture by bringing new support for R&D start-ups.

5.2.5.2 Targeted Claimant

This R&D incentive has been developed with a specific target in mind. The targeted companies are innovative start-ups. The most pressing aim of the creation this R&D incentive is to provide a timing advantage, allowing these companies to access their R&D losses and

manage early cash flow issues; overcoming one of the key barriers to start-up companies carrying out R&D. This incentive can be thought of as an interest free loan from the Government which has to be paid back from the taxpayer's future taxable income.

5.2.5.3 Rate of R&D Allowance, Eligible Expenditure, and Administrative Procedure

The main eligibility requirements are that the company has to be a loss-making company. The company also has to be a resident in New Zealand. To be eligible, a company must spend a minimum of 20 per cent of its total labour expenditure on R&D for a total of one income year for which the applicant exists;[7] this proportion requirement is referred to as the wage intensity criteria. As this R&D incentive caters to the above described demographic, this means that this incentive is not aimed at taxpayers with complex tax arrangements.

In regard to the wage intensity criteria submitters raised concerns that using the R&D wage intensity measure proposed in the issues paper would severely curtail access to the policy because R&D start-ups often use alternatives to PAYE wages and salaries. R&D start-ups may use shareholder-employee salaries and contracted labour instead of PAYE wages and salaries because of the greater flexibility they offer to companies with cash-flow constraints. Submitters also noted that the costs for outsourced R&D are commercially sensitive; for example it could indicate their profit margin. The contracted supplier of the R&D would be unlikely to provide this information to the contractor in the invoice.

5.2.6 Adam Smith Principles Evaluation – Current R&D Cash Out

The net impact of this option is transferring a timing advantage from the Government to eligible businesses. On balance, this timing advantage is expected to be much more valuable to target businesses (cash-constrained R&D start-ups) than to the Government, and is

[7] Refer to section MX 3, 'Wage Intensity Criteria', of the Income Tax Act 2007.

therefore expected to have a positive impact at the margin on incentives to invest in R&D as well as the likelihood of successful innovation.

The below submissions used for benchmarking against Adam Smith's (1776) Principles of Good Taxation are taken from various submitters' suggestions on the Taxation (Annual Rates for 2015-2016, Research and Development, and Remedial Matters) Bill to the Finance and Expenditure Committee (FEC) (The New Zealand Parliament, 2015).

The theoretical framework used in this research, institutional theory, is concerned with how political and social institutions contribute greatly to shaping political "actors" in terms of the way these political actors then define their interest and exert their influence on other groups, this framework is supplemented by agency theory. The researcher recognises that under this framework, the submitters who are tax practitioners and are representing their clients represent their clients to their best interest. The submitters are a social institution, which influences the political actors (state representatives) to make legislative changes that would benefit them. This premise describes the interplay between the state and submitters. This interaction influences the tax policy area, and hence the extent to which policy outcomes reflects the preferences and influence of social institutions.

This theoretical modelling helps clarify that R&D is highly political illustrated by the repeal of the R&D Tax Credit resulting from a change in Government; it was put down to politicization rather than sound economic reasoning.

5.2.6.1 Equity

As mentioned previously, this incentive focuses on R&D intensive start-up companies, and intends to lessen their risk of encountering market failures arising from the current tax treatment of losses. Eligibility for the Cash Out excludes entity types such as a Look-Through

Company on the basis that these companies have their own regime whereby the losses flow through to the shareholders. Other exclusions include similar entity types to those excluded in the R&D Tax Credit regime such as Crown Research institutes, which have access to more effective funding mechanisms. The researcher considers that these are mechanisms aimed to increase the equity of the R&D Cash Out incentive.

The submissions lodged to the Finance and Expenditure Committee (FEC) (as mentioned above) had proposed some measures which allow this incentive to be more equitable. Some of the measures include broadening business eligibility criteria to include qualifying companies on the grounds that qualifying companies are a large group of taxpayers and that these companies no longer have flow-through treatment of losses (i.e. they do not have their own regime). The officials support this submission. This submission was suggested by Chartered Accountants Australia and New Zealand, and EY. The agency theory framework used in this research can inform the findings such that perhaps the social institutions who have argued this suggestion were acting in their own self-interest. Furthermore, as for the submission for inclusion of qualifying companies, agency theory could suggest that perhaps qualifying companies make up a large portion of the submitters' client base which would form a motivation for the submitters (social institution) to influence the Government (political institution) to bring changes to include qualifying companies in the regime and henceforth, accumulate more work from clients for the submitters.

Another submission by Chartered Accountants Australia and New Zealand, and Deloitte suggests the inclusion of companies within a group that includes a foreign company. The exclusion of such companies may prevent expansion offshore as well as prevent access to an international client base. The officials have accepted this submission, which would make the Cash Out more equitable given that once the submission is accepted; the Cash Out then does

not incur a difference of treatment between firms owned by non-resident, non-corporate bodies which are eligible and non-resident corporate bodies which are not. This establishes a higher level of equity for R&D Cash Out claimants.

While the R&D Cash Out incentive is largely equitable for loss-making companies, it is not equitable for all companies as profit-making companies, and those breaking-even are excluded from this regime altogether. For this reason, the researcher considers the equity principle to be neither upheld nor abandoned within the R&D Cash Out which results in a No-Effect outcome (neither negative nor positive).

5.2.6.2 Certainty

The Inland Revenue has developed an interactive webpage within the Inland Revenue website for the new R&D Cash Out (Inland Revenue, 2016a). The webpage features a user-friendly layout which includes a 5 step system aimed to guide a prospective claimant through an easy to follow process including an online eligibility tool (Inland Revenue, 2016b). The website simplifies the process to prospective claimants and increases certainty.

Moreover, a multitude of submissions raised by different entities regarding measures which enable the drafting of the R&D Cash Out to be more clear have helped add certainty to the use of the R&D Cash Out. The submissions suggest inclusion of limited partnerships within the definition of "group of companies" for R&D Cash Out purposes (Inland Revenue, 2015b, p.5). The officials support this submission and agree that existing drafting may be difficult to apply to partnerships as they use different concepts than companies (Inland Revenue, 2015b, p.6). This submission was suggested by EY and has since been accepted by officials.

A similar submission was put forth by an independent advisor to the select committee and requested clarification on the requirement that companies must comply with their tax

obligations to be eligible for the R&D Cash Out incentive. It was unclear whether if the non-compliance was immaterial if the taxpayer can still elect to register for the Cash Out. This matter was accepted by officials.

Many other submissions spoke to unclear provisions in the initial drafting of the R&D Cash Out including matters relating the wage intensity criteria, amount of cash out, R&D expenditure and reinstatement of losses. This consultation process highlighted many issues requiring clarification in the R&D Cash Out legislation, in most cases the submissions were accepted and applied bringing more clarity to the legislation. Therefore, the researcher deems the principle of certainty to be upheld by the R&D Cash Out incentive.

5.2.6.3 Convenience

As in the case of the R&D Tax Credit, the tax system administers the Cash-Out. The Cashed-Out loss is similar in effect to an interest-free loan that the taxpayer is obliged to pay from their future taxable income.

The essence of the R&D Cash Out incentive is to provide a temporary timing benefit for loss-making companies by allowing up to 28 per cent of their recognised losses from R&D expenditure to come forward. Undertaking R&D activities involves high up-front costs. In comparison to other investment projects, the profit cycle for R&D inclines to be more heavily skewed towards early losses, which can pose a major barrier to businesses undertaking R&D. The treatment under the R&D Cash Out incentive would work to ease cash flow restraints on innovative start-ups and hence alleviate the barrier that stands in the way of innovative firms undertaking R&D.

This allows a cash flow advantage to the taxpayer, and would coincide with the upholding of the convenience principle of Good Taxation. The researcher considers that the technical

treatment brought by the implementation of the Tax Credit would allow taxpayers a timing advantage and therefore likely have positive convenience implications.

5.2.6.4 Economy

Callaghan Innovation had agreed to work with Inland Revenue for support with the R&D Cash Out initiative by providing investment managers to Inland Revenue who assist by providing judgments on R&D eligibility in the early years of the initiative. This assistance could provide administration support to the Government as a measure that could speed up the application process and ensure it is handled in a timely manner.

A submission raised by officials and lodged to the FEC proposed that information sharing with Callaghan Innovation and the Ministry of Business Innovation and Employment (MBIE) should occur as part of the initiative for the reasons of utilising an existing technology system (owned by MBIE) to administer the initiative. This submission was accepted and it is largely in accordance with Adam Smith's economy in Operation principle which states that the tax (or benefit in this case) should be levied (bestowed) with the lowest possible waste. Information sharing makes use of MBIE's existing technology system rather than developing an Inland Revenue system; this mitigates deadweight cost or the inefficient allocation of resources.

For the taxpayer, the administration process involves the claimant applying to cash out their losses by submitting the application at the same time the income tax return for the company is being filed.[8] Also, compilations of required statements on R&D expenditure for a lodged application are less strenuous than the past R&D Tax Credit regime which means lesser

[8] Proposed section 70C(2) of the TAA 1994 originally allowed a 14-day period for taxpayers to pay their R&D repayment tax, however, a submission from Inland Revenue suggested that the 14-day period be removed which would prevent the taxpayer having two different due dates. This submission was accepted.

compliance cost for taxpayers who are encouraged to be "concise" in their statements, (Inland Revenue, 2015b, p.28).

In addition, the webpage developed for the new R&D Cash Out is created to simplify the process of obtaining a Cash Out amount which could mean lower psychological compliance cost for the claimant as well as lower fiscal cost as the claimant may be able to carry through the process independently of external practitioner assistance.

Thus, the researcher argues the R&D Cash Out incentive upholds the principle of economy.

5.3 R&D Incentives Information Synthesis Summary Table

Table 5.1 below contains the R&D incentives' information synthesis summary for matters discussed in sections 5.2.1, 5.2.3, and 5.2.5 above. These matters include eligibility criteria, rate of allowance tendered by the R&D incentive, eligible expenditure, and administrative procedures involved. The findings are summarised above in a format which visually pins the incentives together to facilitate cross-comparison for the reader to decipher the differences (and similarities) among the incentives with a greater degree of ease.

In regard to eligibility criteria, there are similarities in the general criteria required by all the incentives (such as "R&D must be done in NZ") but most closely the R&D Tax Credit and the R&D Cash Out. As eligibility to both incentives requires a business to control or own the knowledge which results from the R&D activity. This requirement is not mentioned under the R&D Grants. Similarly, the definition used for the R&D activities (also used for the requirements of eligible expenditure) comes from the provisions in the Income Tax Act (ITA) 2007 which govern R&D as opposed to the IAS 38 definition used for R&D activities for eligibility to the R&D Grants. Moreover, under business eligibility, both the R&D Tax Credit and the Cash Out both have a similar test which requires a selection of "any" entity type apart

from ones listed, whereas the R&D Grants specify the type of entity from the ones listed – a narrower eligibility. Lastly, under wage intensity criteria, a similar pattern may emerge as the steepest wage intensity requirements are associated with the R&D Grants (narrower eligibility).

In terms of the rate of allowance, this category of requirements offer the most difference between the incentives, as the R&D Tax Credit offers a 15 per cent rebate, the Grants vary per grant type offering between 20 per cent and 40 per cent, and the Cash Out offers multiple options for calculating the tax credit which allow the claimant to select the option resulting in the smallest amount.

As for the administrative procedures, the R&D Tax Credit and the Cash Out both have similar administrative procedures involving submitting a detailed summary of R&D spending at the same time as the income tax return for the company is being filed. Meanwhile, the R&D Grants involve a perhaps more time consuming procedure which consists of making contact with Callaghan staff then fill out applications and provide audited financial statements and filing progress reports and final proposal to Callaghan.

Overall, Table 5.1 on the next page demonstrates the similarities and differences among the past and current New Zealand R&D incentives. Table 5.1 allows the reader to notice the similarities among the R&D Tax Credit and the Cash Out, and the differences between the before-mentioned incentives and the R&D Grants as discussed above.

Table 5.1 – 'R&D incentives' information synthesis summary'

	R&D Tax Credit 2008-2009	**Callaghan Innovation Grants** 2013-Ongoing	**R&D Cash Out** 2015-Ongoing
Eligibility Criteria	**General Criteria:**	**General Criteria:**	**General Criteria:**
	1. A business must control the R&D project, bear the financial & technical risk and own the project results. 2. The entity must be in business in NZ. (Or via a fixed establishment in NZ) 3. Special rules apply for industry research co-operatives. 4. Must conduct R&D activities as defined in LH7 ('S.I.E')	1. A business must meet financial and due diligence requirements. 2. The claim must be for R&D done in NZ (unless pre-approved) 3. The claimant must have an active R&D programme. 4. Must not bring the reputation of CI or the R&D Grants programme into disrepute. 5. Must conduct R&D activities as defined in NZ IAS 38.	1. A business must be a tax resident in NZ. 2. Have a net loss in the corresponding tax year. 3. Have eligible R&D expenditure for the income year. 4. Own the intellectual property (IP) and the knowledge that results from the R&D activity. 5. R&D expenditure as defined under the provisions which govern deductibility of R&D in the income tax rules.
	Business Eligibility Criteria:	**Business Eligibility Criteria:**	**Business Eligibility Criteria:**
	The business can be <u>any</u> entity type apart from the following: • A New Zealand Crown Research, • A tertiary institute, • A District Health Board, • An associate of the above; NOR, • Any entities under the control of any combination of the above. • R&D performed by a business in partnership with these entities is also ineligible.	The business must be <u>one</u> of the following: • Registered under the Companies Act or the Limited Partnerships Act, • A Māori incorporation or trust established under the Te Ture Whenua Māori Act, • A trust set up to manage assets as part of a Treaty of Waitangi settlement, • A Māori statutory body; OR, • A business controlled by one or more of these entities.	The business can be <u>any</u> entity type apart from the following: A company which is resident of a foreign country, A look-through company (LTC). Listed on a recognised exchange, or have 50% or more of the shares in the company are owned by one, or of a: • Public authority • Local authority • Crown research institute • State enterprise • Established by or subject to: o Education Act '89 o Public Health & Disability Act 2000 o Crown Entities Act 2004
	Wage Intensity Criteria:	**Wage Intensity Criteria:**	**Wage Intensity Criteria:**
	Must spend at least $20,000 of eligible expenditure in the year a claim is made. Exception exists if the R&D services are purchased from an unassociated listed research provider.	*(Eligibility to Growth grant only)* Must spend at least 300,000 in the year and 1.5 % of revenue on RDI in each of the last 2 years or plan to meet this in the following year.	Must spend at least 20% or more of your total labour expenditure on R&D. R&D labour expenditure formula: $\frac{\text{Total R\&D Labour Expenditure}}{\text{Total Labour Expenditure}} \times 100$

Rate of allowance	The R&D Tax Credit is applied at the rate of 15 per cent of eligible R&D expenditure.	The rate of R&D Grant varies by Grant type, as per below: • Growth Grant: 20 per cent of eligible R&D expenditure up to $5M p/y. • Getting Started Grant: 40 per cent of eligible R&D expenditure up to $5,000. • Project Grant: 40 per cent of eligible R&D project costs. • Career Grant: depending on career-grant type. Range $6,400 – $75,000.	The amount of Tax Credit is presented as an interest-free loan from the Government and to be paid by the taxpayer from future taxable income, the amount given is the smallest of the following: • $500,000 multiplied by the corporate tax rate (CTR). • The company's net loss for the year multiplied by the CTR. • The company's R&D expenditure for the tax year multiplied by the CTR. • The company's total R&D labour expenditure for the year multiplied by 1.5 and also multiplied by the CTR.
Eligible Expenditure	Employee remuneration, training and travel of employees conducting R&D, depreciation of tangible property, consumables, certain overheads and payments to other entities conducting R&D.	Any R&D expenditure as defined under IAS 38 para 57. Some general and Specific exclusions apply to the Growth Grant.	Any R&D expenditure as defined under the provisions which govern deductibility of R&D in the income tax rules. Some exclusions apply to activities which take place in a post-development phase and are related to routine work.
Admin Procedures	Business to provide a thorough statement of R&D spending. The business can claim the R&D Tax Credit in an income tax return.	Contact CI and read the Grant funding agreement. File an application for a Grant. Provide audited financial statements. File an annual progress report or final proposal to CI. Personally investigate information on specific types of Grants as criteria differ per Grant type.	Applications are to be completed at the same time the company's income tax return is filed electronically. Electronic filing is also required when a company pays R&D repayment tax.

5.4 Adam Smith's Principles of Good Taxation Evaluation Table Summary

The below table displays a summary of the findings from benchmarking of the past and current New Zealand R&D incentives against Adam Smith's Principles of Good Taxation discussed in sections 5.2.2, 5.2.4, and 5.2.6 above. The above table (Table 5.2) bridges the findings in a visual manner between Table 5.1 above and Table 5.3 below.

The summaries are further outlined in the following table (Table 5.3) under section 5.5 which ranks the order of the R&D incentives according to how equitable, certain, convenient and economical the R&D incentives' eligibility criteria, rate of allowance, eligible expenditure and administrative procedures are.

Table 5.2 – 'Adam Smith's Principles of Good Taxation Evaluation Table Summary'

	R&D Tax Credit	**Callaghan Innovation Grants**	**R&D Cash Out**
Equity	Business eligibility criteria exclude entities, which can access more effective mechanisms for funding their R&D expenditure. Incentive offers no discrimination to all national firms like. Both vertically & horizontally equitable.	Business eligibility criteria depict a niche demographic that many companies will not be eligible under. Largest funds go towards companies that already perform well in terms of R&D spending. Both vertically & horizontally inequitable.	Equitable Business Eligibility criteria. Inclusion of qualifying companies Good level of equity among loss-making companies, but excluded from all other companies. No effect.
Certainty	Volume based incentive – simplicity. Option to apply to Commissioner for confirmation on R&D matters. Definition of R&D expenditure is an adaptation of OECD's Frascati Manual. Certain.	Binary definition of R&D expenditure as per IAS 38 – ambiguous. Subjective/elusive criteria used by Callaghan Innovation to determine eligibility of claimant. Case-by-case basis. Uncertain.	Website dedicated to assisting prospective claimants. Submissions for clarification of legislation drafting. Informed by experience gained internationally and by experience gained by the past R&D tax credit. Certain.
Convenience	Timing benefit available for provisional tax paying firms who can access the benefit of the credit closer to the time they incur R&D expenditure. Convenient.	Unfavourable cash flow implication for some firms. Possibility of untimely delays hinder commercially sensitive innovations. Inconvenient.	Timing benefit available for loss-making companies allowing losses to come forward easing cash flow restraints. Convenient.
Economy	*State Level:* Minimum threshold limit in place to bring compliance and admin cost to a minimum. Difficult to budget for. *Taxpayer Level:* Onerous level of admin and compliance requirements. High cost due to setting up or upgrading systems – indirectly attributable to the incentive. Lack of time in operation to be sufficiently studied. No effect.	*State Level:* Fiscal costs are sustainable. Outsourcing to Callaghan Innovation. *Taxpayer Level:* Psychological compliance cost due to strenuous application process. No effect.	*State Level:* Callaghan Innovation providing support to Government in terms of administration of the incentive. Information sharing using existing ICT system. *Taxpayer Level:* Concise statements needed. Website and resources available to assist claimants. Economical.

5.5 Evaluation Matrix Summary

As each of the four principles carry equal weights of 25 per cent each totalling 100 per cent overall, the incentives carrying the highest percentage out of 100 per cent are considered to hold the highest effectiveness ranking among the three incentives.

Table 5.3 below shows that both the R&D Tax Credit and the R&D Cash Out are first-tied as they both carry a weight of 75 per cent, whilst the R&D Grants are in second place for carrying 25 per cent.

Table 5.3 – 'Evaluation Matrix Summary'

+, ± , −	**R&D Tax Credit**	**R&D Grants**	**R&D Cash Out**
Equity 25%	**+**	**−**	**±**
Convenience 25%	**+**	**−**	**+**
Certainty 25%	**+**	**−**	**+**
Economy 25%	**±**	**±**	**+**
Ranking	**1st-tied**	**2nd**	**1st-tied**

CHAPTER 6: CONCLUSION, LIMITATIONS, FUTURE RESEARCH

6.1 Introduction

At the outset, this thesis applied an institutional theoretical framework, which sought to clarify the New Zealand R&D regime landscape facilitating an understanding of the rationales behind each policy created. This framework assisted the research findings by allowing the researcher to cast a critical eye as to offer insights into the degree to which the R&D policy design process advantages and disadvantages certain groups and to explain how institutions' interplay influences R&D incentive policy. Further objectives for this research included an exploration of each incentive and a cross-comparative analysis among all New Zealand's past and current R&D incentives. These inquiries would led to the third process concerning this research drawing tentative conclusions as to which incentive or set of incentives were likely to be considered the most effective when benchmarked against Adam Smith's (1776) Principles of Good Taxation.

At the conclusion of the thesis, the findings addressed the research questions listed below:

> *RQ1: Why did each incentive come into being? (Policy intentions)*
>
> *RQ2: How does each incentive fare when benchmarked against Adam Smith's Principles of Good Taxation?*
>
> *RQ3: Which incentive(s) is/are likely most effective according to the above assessments?*

The thesis aimed to make two primary contributions. The first is to perform an overarching review of the environment that shaped the policies for the R&D incentive regimes in New Zealand. The aim from this step was to clarify the New Zealand situation by studying the policy rationales behind each R&D policy created. In addition, this thesis studied how political institutional arrangements and interplay between institutions have contributed to the

varying R&D incentive designs to similar policy problems (increasing the level of private sector R&D spending). The second key objective of the research was to provide some insights into how equitable, certain, convenient and economical each incentive is. These principles are used in this thesis as the overarching evaluative framework and are derived from the Adam Smith (1776) Principles of Good Taxation.

6.2 Conclusions

The historical overview undertaken by this research in chapter 3, 'Current New Zealand R&D Regimes & Legislation', answered the first research question listed above (RQ1). The overview shows that R&D is a political matter. The researcher found that the role that institutional arrangements played between the enactment, repeal and the legislative changes of R&D incentive policy in New Zealand was very evident in New Zealand's past. Policy outcomes often reflected the preferences and influence of the State (New Zealand Government), interest groups (tax practitioners) and individuals (business owners). This interplay influenced the tax policy area. Therefore, the decision to enact, repeal, and make legislative changes to R&D policy was often driven by politicization attributed to a change in government rather than sound economic reasoning (institutional factors).

The discussion findings also addressed the second and third research questions (RQ2 & RQ3) in chapter 5, 'Discussion' and show effectiveness according to Adam Smith's Principles of Good Taxation evaluation. The chosen principles carry equal weights of 25 per cent each totalling 100 per cent overall. When benchmarked, the incentives carrying the highest percentage out of 100 per cent are considered to hold the highest effectiveness ranking. The incentives' effectiveness according to Adam Smith's framework in relative ranking was found to show the R&D Tax Credit and R&D Cash Out of losses are tied in first place both

scoring 75 per cent, followed by the new R&D Callaghan Innovation Grants in second place scoring 25 per cent. This is based on the following assessments:

6.2.1 The Past R&D Tax Credit

The past R&D Tax Credit was deemed in this research as equitable, certain, convenient and neither economical not uneconomical.

The findings of this research considered the R&D Tax Credit to be equitable due to the drafting of the Business eligibility criteria, which excluded entities that can access channels providing effective means of funding their R&D expenditure. The research finds that the R&D Tax Credit incentive offered no discrimination to firms and was therefore equitable.

In terms of certainty, the past R&D Tax Credit employed mechanisms that could have improved the claimants' confidence of the incentive. For example, the choice of definition of R&D expenditure employed in the implementation of this incentive - an adaptation of the OECD-recommended Frascati Manual definition, allowed further clarity for the taxpayer.

The researcher found the R&D Tax Credit was convenient for use by taxpayers given that the technical treatment of the tax concessions could trigger a timing benefit for provisional tax paying firms who could access the benefit of the credit closer to the time they incur R&D expenditure.

Lastly, in terms of economy, on the state level, while the tax concessions provided a minimum threshold limit to bring compliance and administrative costs to a minimum, this did not greatly assist in the fact that the tax concessions were difficult to budget for due to scope issues and lack of reasonable constraints in eligible expenditure.

At the taxpayer level, qualitative research undertaken in 2009 (Robinson, 2009) commented that practitioners found that the level of administrative and compliance requirements were

particularly onerous, especially due to the high costs of setting up or upgrading systems. However, the researcher argued that the setting up costs involved would have occurred regardless of the type of R&D incentive in place. Moreover, time that the incentive was in operation was a mere financial year, (2008-2009). This made the economy implications inconclusive. Hence, the R&D tax credit was considered neither to uphold the economy principle, nor to abandon it, as the high compliance costs for the first year of the incentive use are likely towards fixed setup cost, which would have occurred in any case.

6.2.2 The Current Callaghan Innovation R&D Grants

The current Callaghan Innovation R&D Grants were considered in this research to be inequitable, uncertain, inconvenient and neither economical not uneconomical.

The findings of this research considered the current Callaghan Innovation R&D Grants to be inequitable as the Business Eligibility criteria depict a niche demographic that many companies will not be eligible under. Moreover, the largest funding amounts go towards companies that already perform well in terms of R&D spending. It is argued that given these companies' ability to source funding from internal and investor sources that they need not gain access to another governmental funding channel. These issues make the current Callaghan Innovation R&D Grants both vertically & horizontally inequitable as the incentive promotes discretionary assistance that favours one company over another.

In terms of certainty, the current Callaghan Innovation R&D Grants employ mechanisms that undermine the claimant's confidence of the incentive. These mechanisms include the use of IAS 38 as the definition of R&D expenditure that an R&D liaison group has deemed to bring sweeping uncertainty. Moreover, Callaghan Innovation uses somewhat subjective/elusive criteria to determine eligibility of claimants for Project Grants that adds another layer of

complexity due to multiple interpretations possible of the criteria. These factors rendered the current Callaghan Innovation R&D Grants as lacking in certainty.

The current Callaghan Innovation R&D Grants were also found to be inconvenient for use by taxpayers as in some cases it introduced unfavourable cash flow implications, for example: Getting Started Grants paid upon completion of the project. In addition, the possibility of untimely delays given the painstaking application process may hinder commercially sensitive innovations.

Economically, the researcher suggested that the fiscal costs of maintaining the grants at the state level are considered sustainable considering that they work as an investment (rewarding "winners") rather than governmental assistance to struggling companies. The outsourcing of administration to Callaghan Innovation also provides governmental administrative assistance, which alleviates economic burden on the Government.

At the taxpayer level, there is a consideration that the long application process may have rendered some commercially sensitive innovation projects no longer valuable could cause anxiety for the taxpayer and perhaps high psychological compliance costs. Therefore, due to the mixed findings in terms of the economy principle, the researcher registered this as a no-effect.

6.2.3 The Current R&D Cash Out of losses

The current R&D Cash Out of losses were considered in this research as neither equitable nor inequitable, certain, convenient and economical.

The Business Eligibility criteria pertaining to the incentive captures mechanisms which increase equity such as fair inclusion of certain companies (qualifying companies) and fair exclusion of companies similar to exclusions of the past R&D Tax Credit incentive. In

addition, the implementation of this incentive was informed by experience gained internationally and by experience gained by the past R&D tax credit. These factors provide for a relatively adequate level of equity for the current R&D Cash Out of losses. However, the regime in itself is only equitable across loss-making companies. Therefore, profit-making companies and those breaking-even, are excluded from the regime altogether, hence, this incentive was considered as neither equitable nor inequitable.

In terms of certainty, the current R&D Cash Out of losses employ mechanisms that can increase the claimant's confidence of the incentive. These mechanisms include fixing drafting issues raised by submitters who have asked for clarification on a range of matters, which have now been applied to the legislation. The Inland Revenue's creation of an all-encompassing website dedicated to assisting prospective claimants and providing tools which breakdown the process for the claimant increasing its simplicity and accelerating the claimant's understandability of the initiative.

The current R&D Cash Out of losses were also found to be convenient for use by taxpayers given that the technical treatment of the losses carried forward allow timing benefits for loss-making companies allowing losses to come forward easing cash flow restraints. This treatment renders the incentive as convenient for use by taxpayers.

Lastly in terms, of economy, on the state level, Callaghan Innovation provides support to the Government in terms of administration of the incentive. This alleviates the Government's administrative burdens somewhat. Moreover, due to the approval of submissions suggesting information sharing using the existing information and technology systems to take place, this brings the deadweight loss to a minimum.

At the taxpayer level, officials have advised that there are mechanisms that can assist the claimants by way of lessening compliance costs in the first year of use of the incentive (and

arguably the most burdensome year). Given the above mentioned resources created to empower taxpayers to handle their affairs independently and less stringent requirements for R&D expenditure explanations, the researcher considered that the current R&D Cash Out of losses were economical.

6.3 Limitations

This research is chiefly limited due to the scope constraints of this thesis and the research methods used. The research methods used in this study, documentary analysis and the case study approach, had limitations at the outset. The qualitative method of documentary analysis involves a time consuming process of collecting the appropriate data for study, which limited the amount of time the researcher was able to spend applying the actual findings across the principles being studied.

The case study approach is also said to be limited in its generalisability and replicability. This is as each case study reflects one specific situation in time. However, these concerns are perhaps more associated with positivist research aiming to construct a broad-spectrum theory clarifying how the involved parties will act. The research undertaken by the researcher in this thesis was more closely associated with an interpretivism approach, which attempted to inject coherence to the body of research of the topic in view of different occasions, periods or circumstances.

Another limitation in this particular research was the lack of ability to locate practitioners who specialise in the R&D Tax Credit as most have relocated overseas in response to the repeal of the R&D Tax Credit. However, as this research draws upon Robinson's findings (2009) from research that conducted interviews with practitioners, the research is also then limited in the interviewees in Robinson's research have a natural bias towards preferring the R&D tax credit, affecting their communicated opinions drawn upon in this research. Also, in

terms of the R&D Tax Credit, there are inherent limitations in firmly concluding data for Tax Credit as the credit was enacted for a sum total of one financial year which is deemed insufficient for revealing absolute truths. In addition, the R&D Cash Out has never been used internationally, to the researcher's knowledge; therefore, helpful comparative studies are inexistent at this stage.

6.4 Future Areas of Research

This thesis has contributed to the R&D body of knowledge by being one of its firsts to examine all of New Zealand's past and current R&D incentives. Following a literature review and a historical overview undertaken in chapter 2 and 3, information was collected and summarised in table 5.1 (under section 5.3 above). Table 5.1 was created to capture the key information that pertains to each of the past and current New Zealand R&D incentives. While the table was effective as an information summary synthesis mechanism, the table also serves as a standalone tool to allow the reader to facilitate cross comparison among the incentives and also grapple with the large amount of information surrounding each incentive. To the researcher's knowledge, this table is one of its firsts to be created to encompass all past and current New Zealand R&D incentives.

This research is also (to the researcher's knowledge) one of its firsts to study the R&D Cash Out incentive and the Callaghan Innovation R&D Grants. The Callaghan R&D Grants have been effective since 2013 yet there remains no research on the incentive. This is a research gap that the researcher contributed to in this thesis. Moreover, while the R&D Cash Out is merely in its infancy, this thesis provided the preliminary steps for future research to take place. As for the R&D Tax Credit, this research adds to the sparse non-quantitative body of knowledge by using a qualitative research method to explore this incentive. This thesis also chooses an evaluative framework (Smith, 1950) which uses four principles (equity, certainty,

convenience and economy) to benchmark the incentives in chapter 5 and tentatively identify areas of strength and weakness for each incentive. This evaluative framework can be expanded on in future research as briefly mentioned in chapter 4 above.

A limitation of this study was that opportunities for conducting interviewees with R&D tax practitioners and company R&D managers were scarce due to the repeal of the R&D Tax Credit. Perhaps now that the R&D Cash Out is in place and may increase interest in R&D, this would increase the number of available interviewees willing to be interviewed. This presents an opportunity to conduct interviews that access the New Zealand R&D practitioners' opinion on the R&D incentive situation: an update of Robinson's 2009 dissertation research to identify recent developments in the R&D incentive realm.

Future research in this area could include a follow up study that empirically tests the conclusions of this research by conducting a survey that asks companies around New Zealand to benchmark past and current R&D incentives. This would add to the body of knowledge as to the researcher's knowledge there is yet a quantitative study that uses Adam Smith's principles to benchmark the R&D incentives studies in this project.

Future research in this area could also include an evaluation of the R&D process including studying the R&D incentives from an administration and audit probability standpoint and shed light on New Zealand's R&D areas of strength and weakness. Moreover, the OECD countries previously indicated as similar to the New Zealand R&D situation are, Australia, Canada, Japan, the Netherlands, the United Kingdom and the United States. Perhaps comparative studies in these countries could result in interesting conclusions that can add to the body of knowledge.

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APPENDICES

Appendix A

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2015/110

23 September 2015

Dina Afram
Department of Accounting & Information Systems
UNIVERSITY OF CANTERBURY

Dear Dina

The Human Ethics Committee advises that your research proposal "What are the potential effects if the R&D tax credit regime was reintroduced in NZ? - a case study" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 21 September 2015.

Best wishes for your project.

Yours sincerely

Lindsey MacDonald
Chair
University of Canterbury Human Ethics Committee

Appendix B

Information Sheet

University of Canterbury
Department of Accounting and Information Systems
Email: [dra74@uclive.ac.nz]
[4th October 2015]

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

'What would be the potential effects if the R&D tax credit regime was reintroduced in NZ? – A case study'

I, Dina Afram invite to participate as an interviewee in the research project: '*What would be the potential effects if the R&D tax credit regime was reintroduced in NZ? – A case study'*. This project seeks to evaluate the NZ R&D situation. This evaluation will consist of the following parts:

- Investigate the former R&D tax credit regime and recommend whether it should be reintroduced; and
- Conduct a case study examining the R&D journey of 2-3 companies in NZ and their respective practitioners.

Your participation in this research will be in the form of a semi-structured interview regarding the NZ R&D regime. You have the right to withdraw at any stage of this interview, including the withdrawal of information without penalty. This interview will take 45 minutes – 60 minutes. If you agree to participate, an electronic copy of the consent form will be emailed to you; signed consent forms must be returned in person or by email to the researcher for your data to be used.

A follow up enquiry might be needed in the form of an email or quick phone-call; you will be asked to comment on further matters arising. Participation at the follow up stage is also voluntary. A copy of the research summary can be requested at the conclusion of the project by mid-2016.

The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this interview: your identity will *not* be made public without prior consent. Any data I or my supervisors assess as being sensitive will be sent back to you for approval. To ensure anonymity and confidentiality, all data gathered will be securely and safely stored at the University of Canterbury's database servers. Only the researcher and her two supervisors will have access to the data. A thesis is a public document and will be available through the UC Library.

The project is being carried out as a requirement for the Master of Commerce Degree by Dina Afram under the supervision of Professor Adrian Sawyer and Alistair Hodson, who can be contacted at **+64 3 364 2617**, or **+64 3 364 2987 ext 7377**, respectively. They will be pleased to discuss any concerns you may have about participation in the project.

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to the Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

If you agree to participate in the study, you are asked to complete a consent form.

Appendix C

Consent Form

University of Canterbury
Department of Accounting and Information Systems
Email: [dra74@uclive.ac.nz]
[4th October 2015]

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

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I have been given a full explanation of this project and have had the opportunity to ask questions.

I understand what is required of me if I agree to take part in the research.

I understand that participation is voluntary and I may withdraw at any time without penalty.

Withdrawal of participation will also include the withdrawal of any information I have provided should this remain practically achievable.

I understand that any information or opinions I provide will be kept confidential to the researcher and her two supervisors and that any published or reported results will not identify the participants or their institution.

I understand that a thesis is a public document and will be available through the UC Library.

I understand that all data collected for the study will be kept in locked and secure facilities and in password protected electronic form and will be destroyed after five years.

I understand the risks associated with taking part and how they will be managed.

I understand that I am able to receive a report on the findings of the study by contacting the researcher at the conclusion of the project by mid-2016.

I understand that I can contact the researcher Dina Afram at **+64 021 024 55355** or her supervisors, Professor Adrian Sawyer and Alistair Hodson, who can be contacted at **+64 3 364 2617**, or **+64 3 364 2987 ext 7377**, respectively, for further information. If I have any complaints, I can contact the Chair of the University of Canterbury Human Ethics Committee, Private Bag 4800, Christchurch (humanethics@canterbury.ac.nz)

NAME (please print): .....

Signature: .....

Date: .....

Please return consent form via email to dra74@uclive.ac.nz

Please tick this box if you wish to receive a copy of the report of the project: ☐